The River of Life: Sustainable Practices of Native Americans and Indigenous Peoples

Michael E Marchand

A dissertation

Submitted in partial fulfillment of the

Requirements for the degree of

Doctor of Philosophy

University of Washington

2013

Reading Committee:

Kristiina Vogt, Chair

Richard Winchell

Daniel Vogt

Program Authorized to Offer Degree

School of Environmental and Forest Sciences

University of Washington

Abstract

The River of Life: Sustainable Practices of Native Americans and Indigenous Peoples

Michael E Marchand

Chair of Supervisory Committee
Dr. Kristiina Vogt
School of Environmental and Forest Sciences

This dissertation examines how Indigenous people have been forced to adapt for survival after exploitation by Colonial powers. It explains how the resultant decision making models of Indigenous people, based on their traditions and culture, have promoted sustainable growth and development more in harmony with ecological systems.

In a 1992 address to the United Nations, a Hopi spiritual leader warned of his tribe's prophecy that stated there are two world views or paths that humankind can take. Path One is based on technology that is separate from natural and spiritual law. This path leads to chaos and destruction. Path Two development remains in harmony with natural law and leads to paradise. Therefore humans, as children of Mother Earth, need to clean up the messes before it is too late and get onto Path Two and live in harmony with natural law.

Water is the focus for this dissertation, as it crosses all aspects of life. Rivers, for example, have a dual purpose. They are a source of life. But humans also treat rivers as a waste dump. The rivers often are not treated very well.

In 1858, the British Parliament was adjourned because of the "Great Stink" emanating from the Thames River, which was used as a sewer for human waste and pollution. Rivers have been manipulated for flood control, shipping, energy, and irrigation. Rivers have even been de-watered for human consumption. Often water resources have been exploited to benefit some, but often these projects externalized negative impacts to the Indigenous people who previously lived in harmony on these same rivers for thousands of years.

Native Americans have been forced to adapt to Colonial models of development for survival. For example, the Columbia River has provided a wealth of resources for Native Americans for thousands of years. The river was lush with vegetation and abundant salmon resources. But beginning in the 1940's, the US built numerous large hydroelectric dams, turning the river into a series of lakes today. Tribes have had to endure numerous economic booms and busts associated with large scale dam construction repeatedly. Most of the benefits go to communities far from the river today in the form of energy and for irrigation water. But for the Indigenous people who were once fishermen, the salmon runs were destroyed completely in many areas. Native Americans suffered greatly. The dams were built with no regard to negative impacts on the salmon or Native Americans. But the Native Americans today are taking the lead on mitigating the dam impacts and through their efforts salmon are making a comeback once again. Native

Americans have been able to pressure the dam owners to modify the dams to improve fish passage and they have pressured the fishing industry to better regulate fish harvest. This has been possible because their decision-making is based on their Indigenous traditions and culture. Similar struggles are taking place around the world.

There is no single Indigenous model however. Each Indigenous cultural group is unique and there is diversity. Their locations are different. Some Indigenous people have adapted and partially assimilated into Colonial cultures. In other cases they have chosen to be separate. Indigenous decisions are made locally so they live with the impacts. Decisions also tend to be made for the good of the community and there is less focus on the individual. Long range goals tend to be more valued then short term gains.

This is reflected in business planning. Native Americans consider the impact to 7 Generations into the future. They live with the consequences of their business decisions. They are not absentee owners such as foreign investors. Protecting ways of life are more important then short term gains.

In contrast, non-tribal Colonial based business models often have goals more short term in nature. Plans are often really just vehicles for getting project financing. Business is often greatly influenced by the individual CEO and by out of local area stockholders.

The old traditional Western view of man as separate from nature is seeming to begin to evolve and beginning to move in the direction of Indigenous world views, but consensus is still far away

and not a sure outcome yet.

These stories are recounted in this dissertation. Indigenous people rely on their history and culture and traditions. The goals are long term and not short term. The timeline is almost timeless. Decisions are concerned with both how their ancestors would view them and also how they impact future generations. They view everything as alive with a spirit. Everything is inter-connected. The earth is Mother and is alive. These foundational beliefs have allowed tribes to survive and to adapt to ever changing situations.

Table of Contents

Sustainability: Learning from the Past

A Lens on Culture and Traditions of Indigenous Peoples and Local Communities

Portfolio for Sustainability: Native Ameican Behavior Blended with Western Science

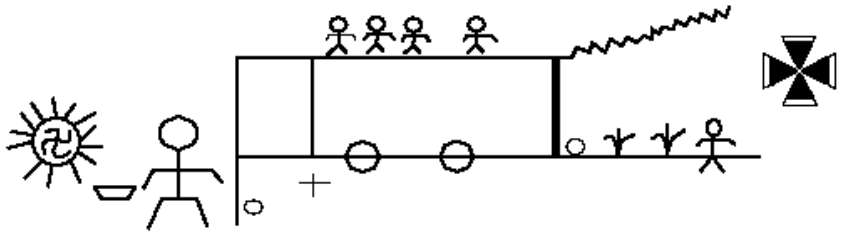
Culture as the Core of Native American Leadership

SUSTAINABILITY: LEARNING FROM THE PAST

1.0. A Tribal Introduction to Sustainability

On December 10, 1992 Thomas Banyacya, a Hopi spiritual leader and elder made a speech at the United Nations

> *"…many powerful technologies (will) be developed and abused… Nature itself does not speak with a voice that can be easily understood….who in this world can speak for nature and the spiritual energy that creates and flows through all life? In every continent are human beings that are alike but who have not separated themselves from the land and from nature. It is through their voice that Nature can speak to us. The rock drawing shows the Hopi prophecy:*



There are two paths. The first path has technology but is separated from natural and spiritual law and leads to the jagged lines representing chaos. The lower path is one that remains in harmony with natural law. Here a line is drawn that represent a choice like a bridge joining the paths. If people return to spiritual harmony and live from their hearts, they can experience a paradise in this world. If they continue only on this upper path, they will come to destruction. It's up to everyone, as children of Mother Earth, to clean up this mess before it's too late."

The idea of a Mother Earth was widely accepted as there was a Greek Goddess, Chaos, who gave birth to the universe including the Goddess of Earth (Gaia).

But technologies are not all bad. Telephones, radio, TV and computers have made it possible for people to communicate with each other and expand their horizons. Ships, trains, autos, and

airplanes do the same at a different level. All this is good if it ended there. But some people have used this technology to destructive ends such as war.

The issue can be reduced to the intent of the user of technology. The inventor or developer of the technology should be commended for his innovation and service to his community. But the people who put the technology to use without considering its impact on others should be condemned. American Indians try to prevent negative impact on seven succeeding generations.

However, technology has become so complicated and sophisticated that it is difficult to analyze. But most people recognize that we are economically gridlocked. We have allowed our technology to be used against us. This is leading us back to total chaos.

The only way to find the bridge that leads to spiritual harmony is to make a paradigm shift from the physical domain to the spiritual domain. This is like the Greek legend where Gaia evolved from Chaos. Gaia was the Greek Goddess of Earth. The Hindu's called her Kali and Native Americans called her Mother Earth. All thought Gaia is the reciprocal interaction between everything on Earth and the Sun.

One way to achieve harmony with nature is to relate our life to the Medicine Wheel. The Wheel is based on the sacred number four. The first four numbers of the universe are imbedded in music astronomy, geography, and metaphysics. They make up the basis for the whole physical universe. There are four elements of geometry: The Point, the Line, the Surface, and the Solid.

This same four numbers are used by particle physicists to define the fundamental forces of the universe:

- An attractive or gravitational function: North on the Medicine Wheel.
- A radiative or electromagnetic function: East on the Medicine Wheel.
- A receptive or psychoactive function: South on the Medicine Wheel.
- A transmitting or informational function: West on the Medicine Wheel.
- These four integers indicate unity of the psyche and matter. Today we are in a four dimensional continuum. Three space dimensions and one time.
- The four winds described in many Indian legends are the same as the four directions of the Medicine Wheel except the wind indicates movement or something happening. It is related to many spiritual beliefs of the rest of the world.

For example, Chapter Two of the Acts of the Apostles in the Bible mentions a strong driving wind which in Hebrew (Ru-Ah) means "spirit, breath or wind". In Greek the word is pneuma, which means power. Indian stories say the North Wind is the strongest or most powerful in the physical world but each direction has a special meaning. South Wind is supportive. East Wind provides energy and West Wind is the intellect. This is the same spirit that St. Paul said is poured in and out of our hearts. Indians always try to talk from their hearts.

The Medicine Wheel is a powerful metaphor for the totality of life. All aspects of creation and consciousness, inclusive of the mineral, plant, animal, human and spirit realms are contained within the center and four directions of the Medicine Wheel. They overlap and interweave to form the whole. It is in the center of the Medicine Wheel that we find the void, black hole, sacred zero, the chaos at the course of creation, containing all possibilities. Each of the elements – Earth, Water, Fire, and Air – is guided and molded by the sacred life force energy contained within the void. It is the source of chi, which is the life force energy. Life could not exist without the life-force energy of the void, which is the catalyst for all the powers that are found within the

360 degrees of the Medicine Wheel.

For American Indians it is a symbol of all creation, of all races of people, birds, fish, animals, trees and stones. The circular shape of the wheel describes the movements of the earth, the sun, the moon, and the cycles of life, the seasons, and day from night (unfortunately, it is not complete because the circular shape is two dimensional and the universe is three dimensional). This can be somewhat overcome if you look at the earth from the North Pole where you can see the counterclockwise rotational movement. This is the same as following the perimeter of the Medicine Wheel. At the center of the Wheel is the Creator who sits in perfect balance and harmony. Outside the center, there is the Mother Earth, Father Sun, Grandmother Moon, Grandfather Galaxy and the Four Winds or Directions. These represent spiritual paths, leading us to the center so we can also achieve perfect balance.

Scientists in the physical domain are reluctant to consider the spiritual domain. But this might be changing as Sir Arthur C. Clark said in 2006: "The future is not to be forecast but created".

It was 200 years ago that the Hopi Indians predicted the world would be destroyed if we let our technology continue to lead us down the wrong path. This agrees with the Mayan prediction recorded about 670AD which said the "Age of the Jaguar" will end at the Winter Solstice on December 22, 2012. That will be the "gateway" to a new epoch of planetary development, with a radically different kind of consciousness.

Scientists such as Ervin Laszlo (The Chaos Point 2006) and Steven Strogatz (Sync 2003) agree

with the Hopi that we are at a decision point. But they say our world is supersensitive so that even small fluctuations produce large scale effects hence the butterfly effect. The butterfly effect is demonstrated by a monarch butterfly flapping its wings in California and creating a tiny air fluctuation that amplifies and ends by creating a storm over Mongolia.

Laszlo also said we will reach the Chaos Point in 2012. He said, "The processes initiated at the dawn of the nineteenth century and accelerating since the 1960s build inevitably toward a decision-window and then toward a critical threshold of no return: the chaos point. Now a simple rule holds: We cannot stand still, we cannot go back, so we must keep moving. There are alternative ways we can move forward. There is a path to breakdown, as well as a path to a new world". The new world will take us from an overly competitive environment to a more compassionate shared values community.

British scientist James Lovelock described earth in his Gaia hypothesis as a living system that keeps it fit for life. He now thinks the system has been destroyed and may prove fatal for humanity. But that does not consider the impact of the human factor. Humans are capable of creating a butterfly effect.

A Mayan elder said, "The world will change for the better if we think with our heart rather than our head." Indians try to speak from the heart to be truthful and accurate. If enough people do this a new world will emerge just like a butterfly from a cocoon. When we become spiritually aware, we will be totally in control of our destiny.

2.0. The context for our sustainability story

2.1. Essential Sustainability: Insights from a water metaphor

2.1.1. Water - a scarce global commons resource

Why are we using a water focus, i.e., the river, to tell our story for this book? Water crosses political, industrial and land ownership boundaries and is solar driven. A river has a beginning and an end. It runs in only one direction from its source to its mouth. In between the top and the bottom, humans and nature play out their stories. These stories impact life from top to the bottom of the river and beyond the riverscape. Rivers are found all over the world and no one group owns it. Water as a resource that is socially and inequitably distributed are common themes found in the entire human history. So a river story is a global story and a metaphor for society and nature in space and time.

Humans have frequently not treated their rivers well and the river has 'bit back' on human health and survival. Rivers have historically been the waste dumps or sewer ducts of industrialized societies. Rivers are the repository of human diseases and disease vectors. There are many historical examples of people polluting rivers even though they are dependent on its water for food, transportation, energy and many other products. Humans typically ignore 'river messages' telling them that rivers are unable to tolerate and absorb additional human wastes.

Even when people became sick from drinking river water, human dumping of wastes did not stop since it was the lower class citizens who were impacted. Political leaders were not worried about the diseases that were rampant in London during the mid-1800. They did not need to drink the

water collected from the Thames River. Only the lower class citizens needed to drink this contaminated water. When people in power were finally directly impacted by the unhealthy river condition, policies changed to clean up the river. London began to deal seriously with its sewage dumping into the Thames River only after the river became too smelly. Baker [7] (2009) wrote

> ***"….the Thames River, which received most of London's "new sewage, became so polluted from the new discharges of sewage that the stench forced Parliament, located on the banks of the Thames, to adjourn! The "Great Stink", as the 1858 event became known, motivated Parliament to provide the funding for an extensive renovation of its sewer system….."***

Around the world, rivers have provided a dual function for humans. They have been the life-blood of many large cities and at the same time the repository of the wastes that humans throw out. Humans have altered the flow of rivers to suit their needs. When industrializing, river channels were straightened to facilitate its use as a transportation network or to reduce its meander when it travels through human built environments because of flooding concerns. Technology is used to extract water for industries and for agriculture, and to dam a river to generate power using water.

It also has been the vehicle for humans to make money if you could control access to who could travel in a river. The Anonymous saying - ***Water flows uphill towards money*** – captures well how controlling water access has been important for societies [8] (Reisner 1986). There are many stories from Europe of nobles or chieftains demanding tolls from boat captains to pass up or down a river to travel to other cities to trade their products.

2. 1.2 Water as a Sacred Resource

At the same time, fresh water has and continues to connect humans to nature. Many groups have protected water by establishing sacred sites to ensure a community's' access to sufficient clean drinking water. Sacred areas established around the world frequently protected soil and water, e.g. in Japan in the 1500s, in Switzerland and Austria in the 1800s [9] (Perla 2007).

The fresh water that flows in rivers has been a focus of attention of many enlightened people living in traditional as well as industrialized societies. People recognized the values and roles of water and the creatures that lived in the water that human ate to survive. A few proverbs highlight how enlightened thinkers recognized the importance of water and how strongly humans are connected to it (www.cyber-nook.com/water/p-quotes.htm):

- **In every glass of water we drink, some of the water has already passed through fishes, trees, bacteria, worms in the soil, and many other organisms, including people.** Elliot A. Norse
- **Water is the driver of Nature.** Leonardo da Vinci
- **I never drink water because of the disgusting things that fish do in it.** W.C. Fields
- **Plans to protect air and water, wilderness and wildlife are in fact plans to protect man.** Stewart Udall
- **Ocean: A body of water occupying two-thirds of a world made for man - who has no gills.** Ambrose Bierce
- **I believe that water is the only drink for a wise man.** Henry David Thoreau
- **Pure water is the world's first and foremost medicine.** Slovakian Proverb

Water is the basic fluid essential to all human survival. Water appears in many cultural and traditional ceremonies. It is not unusual to find societies managing traditional sacred areas mention of water nymphs or spirits living in and protecting. Community taboos were used to control and to stop over-exploitation of these resources. Communities guarded these areas.

Native Americans have many stories to teach children on the value of water and how it should not be abused. The Native American proverb states this well:

"*The frog does not drink up the pond in which he lives.*"

Native Americans have knowledge and a deep relationship with their natural environments that has developed over many generations. Climate change and massive population growth, which will impact habitat loss and increased use of water resources, will affect Native Americans and indigenous communities more than anyone else.

Native American and other indigenous village sites are always located along rivers and fresh water drainages. Clean and cool water is a critical resource important to the livelihood and cultural survival of many Native peoples. Native people use these natural resources living in water for sustenance at a much higher consumption rate than anyone else, such as salmon.

Water continues to be an important part of Native American culture and traditions today. Water is still drunk during ceremonial dinners as described in Box 1.

Box 1: Drinking Water Before Ceremonial Dinners – Native American

As a manner of respect, many tribes in the Plateau Cultural areas of Washington, Oregon and Idaho begin and end their ceremonial dinners with drinking water. A person is selected to serve the water and pour a small amount into each cup at each setting. Water is served before any other food is placed on the table and it is important that this person have prayerful thoughts and a good heart. At some of the tribal longhouses, religious songs will be sung while the water and other traditional foods are served. One example is the root feast which is held in the springtime each year when edible roots such as white and black camas, wild potatoes, bitter roots and kouse are harvested and everyone gathers at their longhouse for this first foods celebration. Other

traditional foods are served at this dinner such as deer meat, salmon and berries. This dinner is an honoring and appreciation for these foods and it is a time to give thanks to the Creator for bringing these important resources back. Many Plateau tribes believe that every living being on earth follows its own natural laws, the cycle of life. Water is important to every living thing on earth. It's the way things are and if there was no water there wouldn't be no roots, salmon or berries and no cycle, no food. After singing songs of prayer for the foods and water, the meal begins with a small sip of water. These foods and water are considered sacred. This is a festive occasion and everyone enjoys the company seated together. Everyone remains seated until the conclusion of this meal and this will be signified with a final sip of water. Once the dinner is completed, nothing is wasted and guests will gather what food is left and take this home.

Fresh or non-salty water is strongly linked to indigenous cultures due to its historical scarcity.

Box 2 provides an example of the importance of drinking water for the indigenous communities in the Indonesian Archipelago.

Box 2: Waterfall Ritual at the Fourth Congress of Indigenous Peoples Allinace of Archipelago - AMAN

A water ceremony was conducted at the official opening of the fourth Congress of AMAN (Aliansi Masyarakat Adat Nusantara) on April 23-24, 2012 in Tobelo, North Halmahera district, North Maluku province. The ceremony was located at the Water Monument of Tobelo where 1,669 tribal peoples across Indonesian Archipelago – who brought sacred fresh water from their villages – poured the water into the Monument of Water. The sacred water collected from sacred places across Indonesian archipelago and stored in special tools like bamboos, jars, bottles, and others corresponding local values of indigenous peoples in each region. In 20 – 21 April AMAN also facilitated a culinary festival that serves traditional cuisine representing traditional cultures and natural resources of AMAN members. Most of the cuisines are not rice-based foods indicating that indigenous peoples in Indonesia are not relying on rice – the major staple that has been promoted by previous Indonesian government, particularly during the green revolution.

In Bali, during purification rituals in welcoming Nyepi, Balinese flock to beaches in this Paradise Island, to carry colorful offerings and perform Pratima (sacred effigies). Pandanggalak Beach, five kilometers from the Bali province's capital, becomes one among many sacred beaches used for the Melasti ritual. After performing a sacrifice, Balinese brought the pratima to the coast line, as well as dipping their feet in water. Other Balinese who cannot attend the ceremony will be sprinkled with seawater that was collected by their family members. (Source: various readings, AMAN website)

2.1.3 Water, water everywhere but still scarce

Without water, human life on this earth would not exist. This quote published by the United Nations [10] (2012) summarizes the importance of water for societies:

> ***"Without food we can survive weeks. But without water, we can die of dehydration in as little as two days"***

Water is a scarce resource that many governments have not been able to provide its citizens. The 2012 UN report states [10] (UN 2012):

> ***"Water is our most valuable natural resource. It is essential to all basic human needs, including food, drinking water, sanitation, health, energy and shelter. Its proper management is the most pressing natural resource challenge of all. Without water we have no society, no economy, no culture, no life. By its very nature and multiple uses, water is a complex subject. Although water is a global issue, the problems and solutions are often highly localized." …more than 40% of the world's population, experience some form of water scarcity…***

Human life would be impossible without fresh water which is why so many wars have been fought to own it or control its distribution and many treaties written to share it. In 2008, Gleick summarized the history of global water conflicts dating back to 3000 BCE. During this 5,000 year history, 186 major battles over water occurred in every region of the world. Over half (52%) of these conflicts were part of military operations while another 31% were labeled as terrorism activities [11] (Gleick 2008).

During battles, denying people access to fresh water becomes an effective weapon of war. When visiting castles in Europe, it is common to find a deep well built inside the castle walls. When fighting erupted, a castle had to be able to close its gates and fight the attacking army from inside

its fortifications. They also had to be able to survive for many days inside the castle walls during a siege.

Access to fresh water has been a problem throughout recorded human history. It continues to be one of the really 'tricky' problems that society faces today. We need to develop equitable and sustainable solutions for delivering water to society. If we cannot make this happen, conflicts or battles will continue unabated over this scarce but essential resource.

Industrialization and feeding a large population is responsible for much of the water scarcity that we face today. According to a 2012 United Nations report [10]:

> ***"Agriculture, industry and energy are the biggest users of water — it can take 10,000 litres to produce a single hamburger, 1,000 to 4,000 litres for one litre of biofuel and 230,000 litres for a tonne of steel. Agriculture alone accounts for 70% of water use worldwide."***

This latter quote explains why societies expend considerable financial resources to build large-scale infrastructures to manage water supplies. Water management infrastructures highlight the competing demands for fresh water supplies since the builders of this infrastructure determine who has access to water and its ecosystem services. This means that water is a good medium to look at how we make sustainable choices since access to fresh water has costs and benefits, and someone always seems to be a loser. It highlights the inequities that exist globally on the benefits and costs to accessing fresh water, and the competing interests to control where it flows and who benefits from it. Indigenous communities, including Native Americans (see 3.2.4), have faced many examples of losing their water resources and lands when dams are built on their lands for the benefit of 'down-stream' people.

Equitable access to fresh water is one of those tricky problems that society faces since it pits people and their cultures against economic development and financial rewards. Upstream people seldom see the benefits of the rivers that originate where they live. People living at the top of river systems do not have much political clout since their population densities are too low. Upstream people live in the watersheds where the forests are found that capture and store fresh water; "at least one-third of the world's largest cities obtain a significant portion of their drinking water directly from forested protected areas" [10] (UN 2012). In comparison, the downstream cities with high population densities acquire most of the benefits, e.g., electricity from hydro-electric dams. Downstream people, who derive the benefits, are building the infrastructures in the upstream locations to control their access to these water supplies. These downstream people, who live in cities with larger population densities, have the political power to make regulations to determine who and how much water will be consumed by whom.

Who controls water supplies is not just a problem for upstream and downstream people living in one watershed. This is a common source of conflict between countries since rivers meander and cross many country borders; few countries own and control their fresh water supplies [12] (Cooley and Gleick 2011):

> ***"Many rivers, lakes, and groundwater aquifers are shared by two or more nations, and most of the available freshwater of the Earth crosses political borders. International watersheds cover about half of the Earth's land surface, and about 40% of the world's population relies on these shared water sources."***

Political boundaries rarely coincide with borders of regional watersheds so politics and wars predictably will decide who controls water rights and access. Gleick [11] (1993) reported that over 260 river basins and ~270 groundwater aquifers are a resource owned by at least two or more nations. He further estimated that 60% of the global fresh water is shared resource between at least two countries [11] (Gleick 1993). The Jordan River Basin, for example, is managed collaboratively by several countries since no one country owns the total river. The Jordan River originates in the Jordan Basin and treaties determined how much water should flow to Israel; 40% of Israel's fresh water is derived from this source [13] (Mehr 2004). Even though downstream people benefit the most from river water, the infrastructure and technology to manage water supplies are typically located at the source of the water, i.e., upstream locations. Both Israel and Jordan have built irrigation canals or dams in the Jordan Valley to store water for irrigation.

The sources of water change with time and therefore who temporarily owns the water. Aquatic lands owned by the State of Washington was based on maps at the time of statehood and this has changed over time, shorelines and river beds have changed and the state now owns some dry river channels and submerged ocean shorelines. Additionally, the waterway had to be navigable or where a canoe could be used. This makes the ownership of water ephemeral. Water scarcity is therefore a reality that changes with time.

Another problem with water is the lack of consumer knowledge of water production and supplies. Many water consumers in cities in industrialized countries do not know where their water comes from and think it comes from the faucet. These water consumers derive all the

benefits of the water without recognizing that there are costs and benefits to people living at the source of the water. This inequitable distribution or resources and alteration of nature to increase societies access to vital resources is exemplified by the Western European colonialism model of conquest. The colonialism model had winners and many losers as natural resources were over-exploited and local areas of scarcity occurred. These patterns of colonialism highlight practices that were not sustainable in the past and are still not locally sustainable today. These colonial models transformed regional societies and cultures who had already adapted to their environments over several hundred if not thousands of years.

2.2. Colonialism models are never sustainable

2.2.1. Beginning of European Conquest

When these European countries began their conquest more than 500 years ago, the lands were not vacant and many indigenous people had built complex and highly complex societies. These societies were not uncivilized or undeveloped civilizations. European colonialists could have formed trade partnerships with people living on these lands but chose not to. Instead they treated these people as the upriver people in our river metaphor. European colonialists did not care whether the civilizations they conquered were sophisticated or whether they were civilized since they did not follow the European models of what it meant to be civilized.

The civilizations conquered by the Europeans were sophisticated and highly complex societies that collapsed upon the arrival of the Europeans [14] (Miller 2012). William R Fowler described

how sophisticated and civilized the Inca Empire was when the Spaniards first arrived in his contribution to the Microsoft Encarta in 2000 [15]:

> ***"…The Incas built a wealthy and complex civilization that ruled more than 9 million people. The Inca system of government was among the most complex political organizations of any Native American people. Although the Incas lacked both a written language and the concept of the wheel, they accomplished feats of engineering that were unequaled elsewhere in the Americas. They built large stone structures without mortar and constructed suspension bridges and roads that crossed the steep mountain valleys of the Andes."***

These civilizations initially cautiously welcomed these 'white people', i.e., the Spanish explorer Francisco Pizarro and his 180 soldiers, when they landed in 1532 on the Peruvian coast [15] (Fowler 2000). The Incas also had a prophecy that linked a white person as their God returning to this world and these were the first white people they met. Fowler wrote

> ***"...The Incas at first believed Pizarro to be their creator god Viracocha, just as the Aztecs of Mexico had associated the Spanish explorer Hernán Cortés with their god Quetzalcoatl…"***

Spaniards were so god-like in their appearance so this perception was not unrealistic. The Inca had never seen horses and guns that the Spaniards brought with them. Large horses were an extraordinary sight. They also obeyed their Spanish riders. Spanish guns also produced a lot of smoke, made a lot of noise and killed so well.

By the time these civilizations realized that the European colonialists were not gods, it was too late. The dramatic transformation of the cultures and civilizations of North, Central and South American had begun. The European introduced new diseases to these lands which decimated indigenous populations. Millions of people died. For the Inca civilization, it took less than 30

years before these new diseases killed the rulers of the lands [15]:

> ***“ About 1525 both Huayna Capac and his appointed heir died …probably from one of the European diseases that accompanied the arrival of the Spaniards…”***

In central Mexico, the arrival of the Spaniards introduced many new diseases and significantly reduced this region’s population [16] (Mann 2005). Mann [16] (2005) summarized how the population in central Mexico decreased from about 25.2 million in 1518 to 6.3 million by 1545 and finally to 0.7 by 1623. In only 30 years, only a quarter of the population of central Mexico was still alive. These population losses were the result of diseases like smallpox, measles, cocoliziti, plaque, and influenza (Mann 2005). This story was repeated throughout the Americas and was an effective tool to remove the indigenous populations so the European explorers could take their lands [14] (Miller 2012).

Scholars have debated on how large the indigenous populations were upon the arrival of Columbus and the other explorers. The exact number is not as relevant as the fact that populations were in the millions. Prior to the arrival of Europeans, large pre-1492 population densities and highly developed civilizations existed in the Americas.

2.2.2. The Beginning of Collapse in Resource Rich Lands

What stimulated the western European countries to expand their influence to such a far reaching extent around the world? There were many reasons but high on this list was the search for resources and land that were over-exploited and scarce in the home country. Many These

resources had economic value in global trade, e.g., spices and gold. Each European country needed new and abundant supplies of resources to achieve their expansion goals and to effectively compete against their European neighbors.

Scarcity of resources was an old problem facing European rulers. In the past, scarcity of resources was mostly dealt with by a ruler controlling and taking ownership of in-country resources or by conquering other lands where these resources could be found. It was easy for a European ruler to designate lands for the sole use of the crown and not for its citizens. The common man was the up-stream people while the rulers were the down-stream people. Crown lands were needed to provide the wood to build the royal navies and to fire the foundries to manufacture rifles and cannons. Historical records also document how the Roman Empire over-exploited forests in North Africa to maintain the empire from 30 to 476 CE; they even set up a forest reserve in Africa for themselves when concerns were raised about shortages of timber[17] (Winters 1974). European powers did conquer other lands for their resources throughout its history; it worked for them so it was a logical path for them to follow. By conquering other lands, European powers appeared to have resolved their scarcity issues but made resources scarce for the people they conquered.

In Europe, scarcity of resources in-country did reduce a countries industrialization rate and therefore its economic development. For western European countries, access to resources from conquered countries allowed them to overcome these resource scarcity issues. These resources were used to build a country's military strength, e.g., navies and armaments, so they could dominate global trade routes. These countries would not have become global military and

economic power houses if they had been restricted to only consuming in-country resources.

These conquests were not easy for the European powers since they faced battles on two fronts. They fought indigenous communities for ownership of their lands but also fought other European countries who wanted the same resources. For North America, the dominant players in the fight to control access to conquered land resources were the British, French and Spanish [18] (Maier et al. 2003); the only European countries who did not participate in these battles were the Scandinavian countries.

In North and South America, the Europeans found an endless abundance of tradable resources that must have been pleasant surprise for them. It was a resource 'feast' for these conquerors. They were able to enrich themselves and the coffers of their rulers. Many ship loads of resources sailed back across the Atlantic Ocean to Europe.

Fortunately for the first European colonialists, lands in North America are highly productive compared to many other regions in the world [1] (Vogt et al. 2010). These lands provided abundant natural resources and the rich soils were good for agriculture. Geography matters [1, 19] (de Blij 2005; Vogt et al. 2010) and in this case, European colonists were lucky to colonize land that were so productive and had abundant resources. This situation existed because Native Americans did manage their lands without over-exploiting its resources [20] (Anderson 2006; see 8.0). This all changed when the Euro-Americans arrived on the scene. It did not take long for the east coast US fisheries to collapse. The first documented case of fisheries collapse was already reported in the 1700s [21] (Trefts 2004).

Western European colonial countries destroyed cultures and ways of life for many indigenous communities starting as early as 1200 and going to about 1700. In our river analogy, indigenous communities are the upriver people who derived little benefits and all the costs from foreigners consuming their resources while the downriver people, i.e., descendants of the western Europeans or Euro-Americans, derived all the benefits and fewer costs. We need to learn from these stories so that they are not repeated today. They are also excellent examples of what it means to **not be sustainable**.

In general, Western European countries gave little thought to the indigenous communities living and surviving from the lands when they began their global conquest. Those who conquer other people are usually not too worried about whether they treat the conquered people well. Western European countries fit this mold and were only interested in resources and lands they could add to their possessions. They had a 500 year period of global exploration while industrializing that ultimately dramatically changed the environments and societies in North America, South America, Africa, and Asia. They left no part of the world untouched during this period.

2.3. We need a different glue to make sustainability work

> **"Everything on the earth has a purpose, every disease an herb to cure it, and every person a mission. This is the Indian theory of existence."**
>
> ~ Mourning Dove (Christine Quintasket, Okanogan) ~

The colonialism model of global conquest and over-exploitation of resources not belonging to them made these countries powerful and able to build global empires. It was a decidedly unsustainable for indigenous communities and many communities collapsed. Practices of this type are not sustainable. It is not the glue that should be used to frame sustainability choices. We cannot make decisions that transfer the costs to future generations or to those more vulnerable to their environments. We need to develop a different model of sustainability that is not built on the back of past models. The survivors of the people who live in the conquered lands have many stories to tell us on how to practice a non-western world model of development.

We contend that that are many lessons to be learnt from a people who have lived for several thousand years on their land, who lost their lands to conquerors but who adapted and survived to re-emerge as important drivers of natural resource policies today. These are the people to learn from since they are superb adapters and were able to retain the memory of the critical elements of their identities and cultures despite being conquered. We are talking about Native Americans and other indigenous communities that have strong local cultural roots and even today are unwilling to forgo certain traditions for economic gain.

We are not condoning an approach that is grounded in the false paradigms of the ‘savage’ or ‘noble savage’. We are not recommending society moves back to a ‘Garden of Eden’ and give up all their technological and industrial achievements. This is a false paradigm and is not sustainable. We have too many humans living on this globe to even consider moving back to a Garden of Eden. An apple can only be split up so many times before there is nothing left!! No

Native American would suggest such an approach. This is a cosmetic change only when a behavioral change is needed. Native American Indians are not anti-technology. They have adapted to technology and can be found as studiously texting on their cell phone as anyone else. They don't send up smoke signals as might naively think after watching too many old western movies produced in the US.

How is it possible for Native Americans to be a model of sustainability if systematic efforts were made to eliminate all their culture and traditions, i.e., to 'civilize' them in the eyes of the European colonialists and later by the Euro-Americans? We are focusing on the Native American tribes who have lost much of their lands and ownership of their customary resources since it shows the strength of their culture and traditions in sustaining them as a people. Even thought Native Americans lost their lands resources upon the arrival of European colonialists to North America, today they drive natural resource management in many parts of the US (see Traditions are not just writings found in library archives). This means that there is a good story here and one that global citizens should learn from if we are truly invested in becoming sustainable. This is not a story of collapse [22] (Diamond 2005), which human societies like to read about, but a story of redemption of indigenous cultures that lost much with the arrival of the European colonialists.

The western European approaches to resource uses and development were disastrous on the environment and people they conquered. They introduced a 'foreign' model of resource exploitation on the conquered lands. For sustainability to be successful it needs to be grounded in a 'local' model of resource exploitation. 'Foreign' models of resource consumption are

grounded in an artificial paradigm since the local knowledge is not part of the assessment. In general, sustainability is a "slippery slope" for the average world citizen. They do not understand the problems and connectivity that exist in ecosystems because they are 'foreigners' to the realities of the issues or problems they face. These issues range from the mundane, e.g., what kind of toilet paper is green or when is my septic system needing to be emptied, to critical issues, e.g., how much deforestation is occurring, does deforestation contribute to climate change. A Chair of one of the Washington tribes mentioned how he had to deal with problems with someone's septic system one day and then the next day fly to Washington DC to meet with the President of the US to discuss tribal governance issues. In this case, local knowledge is being integrated with national knowledge to address a broad range of social and environmental problems. No problem is too mundane. There are all part of the essential leadership skills needed by anyone wanting to make sustainable decisions on resource uses and economic development.

We need to look for insights to societies that are superbly adapted to take elements of industrialized societies without completely losing their identity and becoming a 'foreigner' on their own lands. These are people who think and live bound by traditional knowledge learned within their communities but are able to integrate knowledge from their conquerors to adapt to the altered world that they live in today. They have succeeded in a way that can teach the scientific and political communities some lessons. This tool also has to be ethically grounded and cannot be based on assuming that technology or economic assessments will provide us all the answers to resolve the 'ills' of today's societies. If you want to know why we think there is a need for an alternative parable, you need to read further in our book!

The western scientific approach to environmental problems has been to search for solutions after we have already lost something. This situation has played out numerous times when searching for solutions to conservation, poverty reduction and climate change mitigation problems. We cannot wait to recognize the value of something when we no longer have the resource – that is a short sighted decision. As Benjamin Franklin wrote many years ago

"**When the well's dry, we know the worth of water**."

The Native American approach to environmental problems is to restore or mitigate problems that they did not cause before they lose something of cultural value. American tribes do not have this short sided approach to resolving conservation, poverty, economic development and climate change problems. The efforts implemented by the Swinomish Tribe to restore salmon habitat is one example of the fore sightedness of tribes to allocate funds towards resolving problems created by western world economic drivers (see 12.0). Many tribes who are implementing projects to restore and mitigate habitat losses so salmon can return to streams (see 12.0).

In the next section, we will briefly summarize how dramatically the European, especially English, colonialists impacted the indigenous communities living in present day United States. This topic is important to cover since our hypothesis is that culture and traditions are the glue that keeps societies working towards resilient and equitable decisions. Once you understand all that the Native Americans faced and their ability to survive these impacts, the importance of culture to survive a war without losing your community values is extraordinary. This brief

overview highlights how these colonialists recognized and targeted the elimination of Native American culture to control their resources and take ownership of their lands. It is important to understand what happened to Native Americans upon the arrival of the western European colonizers since these are not just old stories. The same approaches are being implemented today by countries who think they are doing good deeds, e.g., establishing parks on indigenous lands to protect biodiversity at the continuing expense of indigenous communities who are evicted from their lands and are losing their traditional cultures. In 2011, farmers in Lampung and South Sumatra were killed as agrarian conflicts increased between peasants and plantation owners.

Before we write these stories, we need to introduce our mascot for the book – the **Coyote**. This animal represents well what sustainability needs to look like. Sustainability is or cannot be an extreme solutions pushed by a particular stakeholder group.

2.4. Our coyote mascot blends the dual nature of sustainability

Tribal stories have a focus to not only entertain but to also teach a moral. For example, the coyote is considered a central figure in many Native American cultures. The coyote is nicknamed the 'trickster'. He is neither all good nor all bad. He exhibits both the good and bad characteristics of human beings. We need to become more like a coyote if we are going to make more sustainable decisions for natural resources. This means we do not polarize society into special interest groups that do not accept knowledge held by those not in the inside group. We need to recognize that no one has sole ownership of the correct knowledge. **The purpose of this book is to help us to become more 'coyote-like' – a worthy goal in our world today**. Because

the good and bad characteristics of society are embedded in the coyote, it is the mascot for our book. We will use the coyote because of its dual nature. It helps us to make transparent how tribes use different decision models compared to the reliance of the scientific approach of western industrialized countries. The coyote stories are just one of the many legendary stories told by tribes and is particularly suitable for our story.

The extract below by Roberta L. Hall summarizes this dual nature of the coyote. In part becoming an Indian also means you need to become like a COYOTE. He was responsible for preparing native peoples to respond to newly arriving humans [23] (George 2011). In a similar manner, we introduce 'coyote essentials' that will inform the reader how to become an Indian. But first we have to understand what coyote is to some American Indians (see Box 3).

Box 3: THE COQUILLE INDIANS: Yesterday, Today and Tomorrow (from [24] Hall 1991)

"First there are the "Coyote" stories, mythic stories of a distant past in which animals and humans are of the same reality. The personage Coyote is multifaceted. To some people and in some tales he is the mythical creator of the human landscape, the one responsible for the world as the Coquilles knew it, and was responsible for humans and their role in the world. Coyote also is a trickster, a wily individual with some attributes of the animal "coyote." He is a clever being who tricks others and is tricked himself; often he is both more clever than most of those who he encounters and, at times, more fallible. To some people, Coyote represents the devil. Other Coquilles believe that the original view of Coyote did not encompass the devil role, but that Coyote was refashioned as a devil by Indians who had been converted to Christianity."

□

The coyote is a symbolism that there is not just one approach to resolve a problem or one solution. No one is completely bad, e.g., a devil, or completely good, e.g., an angel. The following Hopi proverb characterizes the message that the coyote expresses

(www.rodneyohebsion.com/hopi.htm):

"If two different bowls both get the job done, then what difference does it make if one bowl is dark and the other is pale?"

In the next section we describe how the western world embattled against Native Americans to control their lands and resources. This is the story we will pick up later since these communities survived despite several centuries of onslaught because of their strong cultural and traditional roots. This is an extraordinary tale and has a lot to tell us about sustainability. Most societies would have become part of the conquering nation with only fading memories of what their life was like before this happened. This did not happen to Native Americans and is the reason their story can teach us about why traditions and cultures connected to nature make us more sustainable.

3.0. Battles to eliminate Native American traditions and culture

"They never stop to get any kind of facts, and even if they hear, like Indians being half-hungry for a hundred years, no jobs, no homes, a lot of them say, 'So what, my people came from Norway. My people came from Germany.' 'They got here and they didn't have nothing, no land, no home, no nothing, but they got jobs, they went to work, saved their money, they worked hard.' Which they did, but they had something mighty different than the Indians, that was opportunity. The freedom of choice, all of the guarantees really in the first amendment. The freedom of speech, of the press, rights to gather in meetings and assemblies. To present their grievances to the government. Their right for redress, none of these things were given to the Indians. In our case, we're nine-years-old and we're beaten, and we're whipped for speaking our language. There was no freedom of speech."

~ Quotes from the Harriet Dove's oral history ~

Who better to learn about sustainability then the people who survived having their cultures and

way of life threatened, eliminated and transformed over a span of several hundred years after the arrival of European colonialists to North America? We are talking about over 500 Native American tribes who lived and flourished on these lands before the western European colonialists arrived on the shores of North America. In the proverb 'das Kind mit dem Bad ausschütten' (see 9.1), the Native Americans were the 'baby' that was thrown out even though the original colonialists were dependent upon the good will of the native peoples to survive on lands that they were poorly adapted to live on these lands [18] (Maier et al. 2003). It is ironic that the symbolisms of today's land management agencies show the animals – eagles and buffalo – that are so revered by Native Americans. Similar stories can be found throughout the world since history has shown us how it was the norm for more powerful countries to displace and disenfranchise indigenous communities in their search for valuable resources.

3.1. European Colonial Manifest Destiny

The European Colonialists had many reasons for exploiting the resources they found in the 'new world'. They felt entitled, e.g., it was their Manifest Destiny or religious duty, to civilize peoples they conquered. At the same time, it didn't hurt that by exploiting resources from these conquered lands, they were able to maintain their imperial status and economic power against other European nations to compete with them for the same resources.

At this period in history, forest resources were an important trade commodity. Trees were needed

to build ships for the Navy and ships to transport trade items. In these days, ships were built out of wood. Unfortunately for the European conquerors, wooden ships were attacked by a mollusk, i.e., ship worm, which decreased the life of a ship. The British Empire was ecstatic when they discovered a tree species, i.e., teak, resistant to the ship worms in their newly conquered lands in India [25] (Vogt et al. 2007). Wood was also needed to produce the charcoal used to heat metals in the foundries to manufacture cannons and other weapons of war. This meant a forest was cut only for the trees that grew in it.

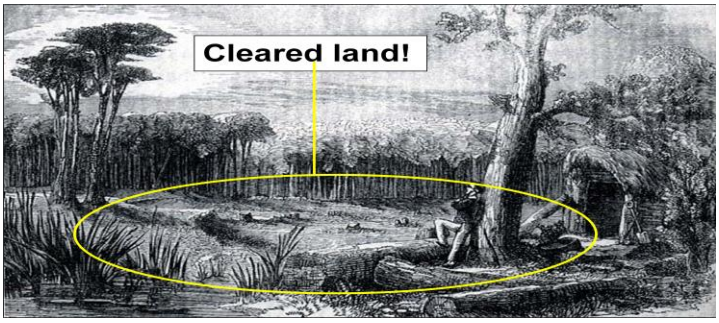
When colonialists cut and cleared forests, their values supported the correctness of their actions. These values justified the over-exploitation of all resources on conquered lands. They were justified to cut trees from lands that they really did not own and had no rights to exploit. Some of the reasons for their actions are:

- **Progress**, e.g., forests had no value for someone who wanted to farm the lands and farming was a civilized activity to pursue;
- **Redemption**, e.g., manifest destiny; and
- **Fear**s, e.g., these lands were scary places that needed to be tamed and where strange wild animals would see humans as a food source needed to be killed.

European colonialists needed to clear land to also demonstrate their new ownership of these lands that were already occupied by other people. They also wanted the lands to look just like what they had left behind in the ‘old country’ so they would be comfortable and fit their idealized model of nature (see 8.2).

3.1.1. Taming Indian lands through agriculture

Many of the English colonialists and settlers felt justified in their treatment of the indigenous peoples and taking their lands and resources. The lands appeared to be unused or vacant.



European colonialists felt vacant lands needed to be used. It was not civilized to leave a piece of land untouched. They did not recognize that many of these lands appeared vacant because Native Americans made seasonal uses of them. Native Americans do not follow the European model of land-use or property rights (see 8.3.1). Once the European colonialists transformed the land, i.e., clear it, it was akin to heaven on earth. It couldn't get better than this for a Euro American settler! It was their Manifest Destiny to civilize these 'savage' people and the lands they had conquered.

Progress, under a Manifest Destiny umbrella, meant taking forests and converting them to agriculture. Since the English colonialists felt that the Native Americans were not using these lands anyway, it was totally justified to make sure that every Euro- American settler had a piece of land that they could plow and own.

Thomas Jefferson's view on how agriculture and 'being civilized' were integrally linked can be found in his writings to John Jay, James Madison, and George Washington [26] (Monticello 2012):

> ***"I think our governments will remain virtuous for many centuries; as long as they are chiefly agricultural; and this will be as long as there shall be vacant lands in any part of America. When they get piled upon one another in large cities, as in Europe, they will become corrupt as in Europe."*** (wrote to George Washington, December 20, 1787)
>
> ***"Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independant, the most virtuous, and they are tied to their country and wedded to it's liberty and interests by the most lasting bands."*** (wrote to John Jay, August 23, 1785)

> ***"It is not too soon to provide by every possible means that as few as possible shall be without a little portion of land. The small landholders are the most precious part of a state."*** (wrote to James Madison, October 28, 1785)

> ***"Good husbandry with us consists in abandoning Indian corn and tobacco, tending small grain, some red clover following, and endeavoring to have, while the lands are at rest, a spontaneous cover of white clover. I do not present this as a culture judicious in itself, but as good in comparison with what most people there pursue."*** (wrote to George Washington, June 28, 1793)

3.1.2. Euro-Americans settling the 'Wild West'

Policies started by the European rulers, who funded these expeditions of conquest, were continued by the descendants of the first European colonialists. After the original settlement and transforming the eastern part of the US, their eyes turned towards controlling the Wild West and also civilizing it. This colonizing of the west was a logical decision since the new US government needed settlers to live on these lands to maintain their ownership of them. The Spanish, French and the British also wanted ownership of these same lands for themselves. The US federal government also wanted their settlers to move into the dispossessed lands that used to belong to the Native Americans. It also did not hurt that gold had been discovered in California in 1848 and non-Indian peoples dream of free gold drove many to want to travel west to make their fortunes.

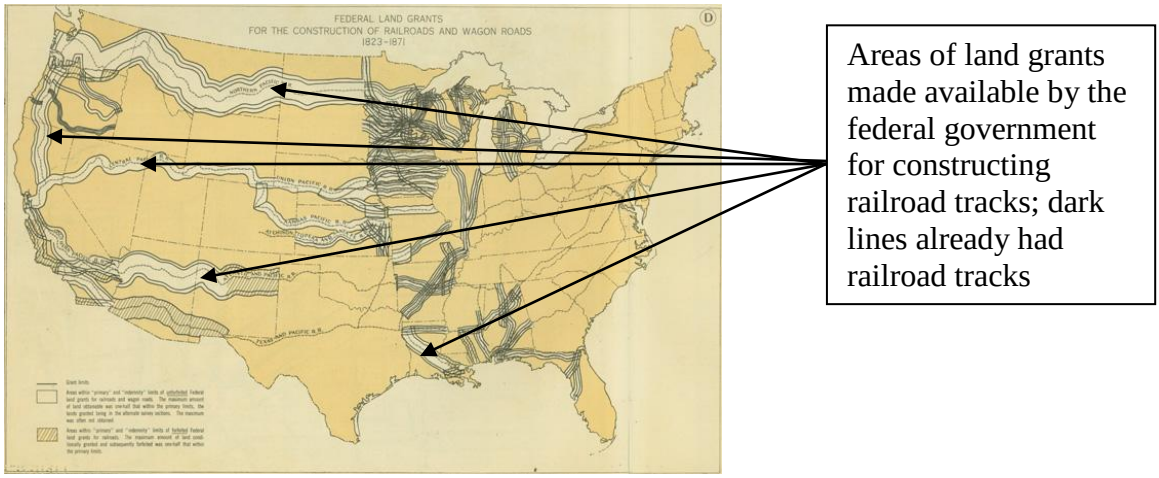
Just because the federal government wanted its citizens to move out west, it was not an easy task to stimulate settlement of these 'wild' and unknown lands. Indians and wild animals still lived on these lands! They lands were not tamed like in Europe. This made traveling west a potentially terrifying experience. You could die. The federal government needed to overcome

people's fears of the Wild West and to view these lands as harmless. At the same time, they needed to stimulate a westward expansion of settlers for progress and redemption to maintain their ownership of these lands.

The federal government did not have money to fund infrastructure or economic development to stimulate this westward expansion. What they did have was a lot of land in the public domain, i.e., all the lands taken from American Indians. Since collecting resources from public domain lands could be sold to generate revenue, this was a viable funding source for the settlement and development of the western US. The period of disposal of US federal domain lands lasted from 1782 until 1860.

The federal government pursued several approaches to stimulate this westward migration – one being to give public domain lands to settlers, companies and local governments. Homesteaders acquired ownership of lands if they managed them for a few years. The Homestead Act of 1862 allowed homesteaders to claim, manage and own any 'unoccupied public lands'. The Homestead Act allowed any person older than 21 years of age, "citizen of the United States, or who shall have filed his declaration of intention to become such, as required by the naturalization laws of the United States, and who has never borne arms against the United States Government or given aid and comfort to its enemies" to file claim to land to not exceed 65 ha (www.pbs.org/weta/thewest/resources/archives/five/homestd.htm). This was followed by several other Acts – all with a goal of allocating land to US citizens. For example, the Timber Culture Act of 1873 allocated 65 ha of land to anyone who would start planting trees on 16 ha of the total land area they were allocated.

It also provided railroad companies land grants and right of ways to expand the transportation infrastructure from the eastern to the western reaches of the US. Railroad companies competed to build this network of railroad tracks. Railroad companies began to transport Euro-American settlers west starting in 1850. The federal land grants set aside for the constructions of the railroad as shown in the map below (see map). What is apparent from the map is how the federal government viewed all these lands as being in the public domain, i.e., they were vacant and unoccupied lands. If Native Americans were found living on these lands, they were evicted and had no rights to these lands.



Map 1. United States land grants available for the construction of railroads and wagon roads between 1823-1871 [27] (Paullin and Wright 1932)

At the same time Euro-American settlers were encouraged to move westward. The images of the Wild West began to change. Now it was beautiful and grand - not just wild and untamed. The arts translated these lands for the common man as being beautiful with expansive vistas as far as the eye could see. They suggested that these lands had not been touched by the 'hand of man'.

The Hudson River School, especially Thomas Cole (1801-1848), painted images of the grandeur of the western landscape. The Last of the Mohicans written in 1826 by James Fennimore Cooper delighted several generations of young readers who were to see the wilderness in a new light. Even music was part of our link to a nature without humans. Amy Beach, American composer, wrote in the *The Gaelic Symphony* "…I had visions of nature, forests, sometimes vast open spaces, sometimes mountains, always idyllic, organic; I became aware of my soul..." [28] (Beach 1896). These images are of a 'sanitized' west since nature is isolated from people. The same imagery is used today to attract tourists to visit western US today.

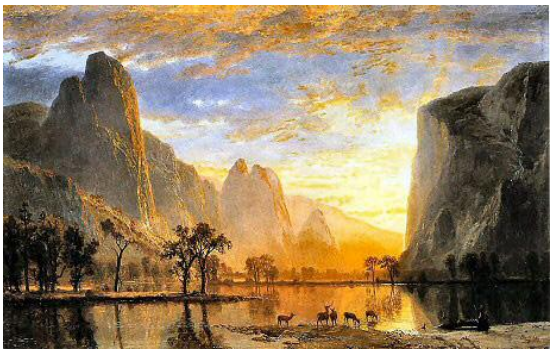
When the US Congress established the first protected area for recreation in the Americas, this grand and pristine view of western landscapes became entrenched in the minds of Euro-Americans and European tourists. In 1872, Yellowstone National Park was the first reservation of wildlands to be visited for recreation purposes only (see 3.2.1). The Park was established on federal government set aside land, i.e., public domain lands. The Yellowstone National Park was especially attractive as a new tourism area. The images of miles of grand vistas, mountains and wide open spaces - typically not found in Europe - were spectacular to behold. It stimulated people to think about recreation when they had more leisure time and could afford to travel westward by train.

The railroads played an important role in advertising the west and its beautiful vistas. Railroad companies needed paying passengers to ride their trains on the newly built railroad tracks connecting the east with the west US. Railroad companies initiated a massive media advertising campaign to show the beauty of the Wild West. They also showed how comfortable it was to

travel by train. They commissioned paintings and had tourism books written to advertise and attract people to travel westward. These scenes depicted the west as beautiful and harmless with wide open spaces and no people. This image was a total contrast to the already crowded Europe. Of course, they forgot to paint in the Native Americans and the other wild animals, e.g., buffalo, wolfs, that lived on these lands. Railroads were successful at getting Euro-Americans too become visitors in America instead of being a tourist in Europe. Advertising focusing on the beauty of the west hid the large profits that railroad companies could generate when train rider ship increased (//plainshumanities.unl.edu):

> ***"The promotion of Western scenery by railroads led to the idea of America's National Park system, although the underlying purpose was profit driven, not the preservation of natural resources. Railroads encouraged Americans to forgo the fashionable European Grand Tour and to discover the Western wonders of Yosemite and Yellowstone that they advertised as rivaling the antiquities of the Old World"***

The Yellowstone images commissioned by the railroads were enticing to look at and depicted their beautiful and sweeping vistas. Who would not be captured by the thought of living or visiting lands that were visually so heavenly? The paintings did include some wildlife but mostly showed idealic settings with no humans (see Photo 1).



Photos1. Images of Yellowstone commissioned by the railroads (//plainshumanities.unl.edu/peattie/images/figures/ep.nov.jtw.intro.06.jpg)

3.1.3. Becoming Civilized: Redemption and Westward Migration

Not all the images showed beautiful scenery. Some of the paintings reinforced the idea that it was the duty and responsibility of Euro-American settlers to move out west to civilize these lands, i.e., fulfills their Manifest Destiny. Historian Sandweiss [29] from Amherst College wrote how John Gast's 1872 painting, entitled the *Spirit of the Frontier*, was commissioned by George Crofun who wanted to include it in his guidebook.

Gast's painting of the west was included in a travel guide in an attempt to attract settlers to move west (see Photo 2). The painting depicted a land that would be easy to tame because Native Americans and bison would flee from the settlers who had the right, i.e., manifest destiny, to possess these lands. It was the duties of Euro-American settlers to civilize this region, i.e., move it from the dark to the light, by bringing the accouterments of technology, e.g., railroads,

telegraph lines, and religion. Sandweiss described the goddess-like figure, with a "the Star of Empire" on her head, as depicting progress [29]:

> ***"In her right hand she carries a book—common school—the emblem of education and the testimonial of our national enlightenment, while with the left hand she unfolds and stretches the slender wires of the telegraph, that are to flash intelligence throughout the land." The Indians flee from progress, unable to adjust to the shifting tides of history."***

Photo 2. John Gast, *American Progress*, 1872. Source: Prints and Photographs Division, Library of Congress.

The view that Euro American settlers had a right and a duty to possess lands in North American, because its current owners were 'savage' and 'not civilized', permeates the early history of European settlement of the Americas. The ideas behind the Manifest Destiny even appeared in letters written by Jefferson. In 1785, Jefferson wrote[26] (summarized in Monticello 2012):

> ***"I beleive [sic] the Indian then to be in body and mind equal to the whiteman," Jefferson wrote to the Marquis de Chastellux. Only their environment needed to be changed to make them fully American in Jefferson's mind. Even though many Native Americans lived in villages and many engaged in agriculture, hunting was often still***

> ***necessary for subsistence. It was this semi-nomadic way of life that led Jefferson and others to consider Indians as "savages." Jefferson believed that if Native Americans were made to adopt European-style agriculture and live in European-style towns and villages, then they would quickly "progress" from "savagery" to "civilization" and eventually be equal, in his mind, to white men."***

Many writings from this time period support the prevalence of Manifest Destiny in the minds of Euro-American settlers and their leaders:

- **"…there was a heroic struggle to subdue the sullen and unyielding forest by the hand of man … to make it something better than it was … openings where God could look down and redeem the struggling inhabitants…etc."** (Wm. Penn 1686) [30] Taylor 2003
- **"…the making of new land demonstrates the direct causal relationship between moral effort, sobriety, frugality, industry and material reward." "..(clearing the land)…tended to measure moral and spiritual progress by progress in converting the wilderness into a paradise of material plenty."** (Franklin 1810) [31] Smyth 1905-1907
- **"What good man would prefer a country covered with forests, and ranged by a few thousand savages to an extensive Republic, studded with cities, towns, and prosperous farms, embellished with all the improvements which art can devise or industry execute … and filled with all the blessings of liberty, civilization and religion?"** (Andrew Jackson 1830) [32] Jackson 1830

It is worth taking a brief intermission to review some of the specific actions taken by the Euro-American settlers to fulfill their Manifest Destiny. These actions had a goal to eliminate Native American culture and traditions, their livelihoods and to take possession of their lands. This goal, as depicted in John Gast's 1872 painting, was under the guise to civilize Indians. Native Americans could not continue to live and survive as they did since it was not civilized. Native Americans living as they had for several hundred years only impeded *Progress* as defined by Euro-American settlers. Being civilized meant that you had to act, think and behave like a European. This meant that you needed to adopt the European view of nature, i.e., nature is isolated from humans and nature needs to be controlled and plucked just like a 'garden' for its fruits. You could not retain Indian views of nature and be civilized (see 8.2).

These stories document what Native Americans faced and what their culture and traditions had to survive. Our story suggests that despite all the attempts to destroy their culture and livelihood, Native Americans retain elements of their cultural and traditional roots that determine how they make resource decisions. The survival of traditional practices today is very apparent from the numerous examples of Native Americans collaborating with state and federal level natural resource agencies to include their traditional values in resource policies (see 12.0). What is recounted in this book is an interesting story of how adaptive and resilient a group of people can be in the face of centuries of onslaught on their culture and traditions. We will end this part of the book with how the past approaches used to eliminate Native American culture and traditions are still being used today to control indigenous communities in other parts of the world. Past practices are not just part of history but are still being implemented by governments today. So this story needs to be told so we do not continue these past practices.

3.2. War on Native American culture and traditions

Native American life changed dramatically subsequent to the arrival of the European colonialists. These changes were institutionalized in 1824 when President James Monroe established the Bureau of Indian Affairs “to conduct the nation's business with regard to Indian affairs” (Gover 2000). It is noteworthy that when President Monroe established the BIA, the US was at war with American Indians so the BIA was located in the Department of War. The apology made to Native Americans by Kevin Gover [the Assistant Secretary-Indian Affairs, Department of the Interior, Bureau of Indian Affairs] reports how dramatically the Indian way of life changed [33]:

> ***"After the devastation of tribal economies and the deliberate creation of tribal dependence on the services provided by this agency, this agency set out to destroy all things Indian...This agency forbade the speaking of Indian languages, prohibited the conduct of traditional religious activities, outlawed traditional government, and made Indian people ashamed of who they were. Worst of all, the Bureau of Indian Affairs committed these acts against the children entrusted to its boarding schools, brutalizing them emotionally, psychologically, physically, and spiritually. .. The trauma of shame, fear and anger has passed from one generation to the next, and manifests itself in the rampant alcoholism, drug abuse, and domestic violence that plague Indian country. Many of our people live lives of unrelenting tragedy as Indian families suffer the ruin of lives by alcoholism, suicides made of shame and despair, and violent death at the hands of one another. So many of the maladies suffered today in Indian country result from the failures of this agency. Poverty, ignorance, and disease have been the product of this agency's work...."***

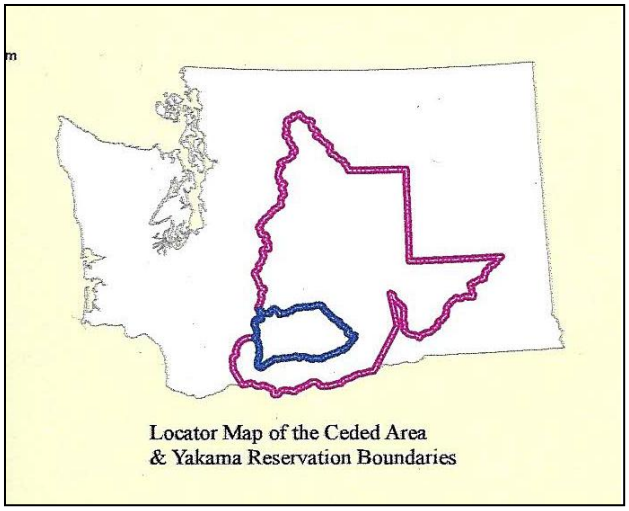
The next section of this book will summarize several approaches used by Euro-American settlers to control lands and resources belonging to hundreds of Native American tribes. The goal was to ensure that American Indians would not be in a position to take back their lands and resources. This required the elimination of Indian culture and traditions. We will first briefly describe the US termination, relocation and assimilation policies that were used to eliminate Indian identity and 'steal' their lands and resources. This will be followed by stories of practices to eliminate their foods of cultural significance and essential for American Indian survival: killing of the buffalo and then the loss of salmon as dams were built on tribal lands. All of these activities were justified under the colonial Manifest Destiny doctrine.

3.2.1. US Relocation, Termination and Assimilation Policies

3.2.1.1. Relocation and loss of customary lands

Descendants of the European colonialists continued practices that excluded indigenous peoples from their traditional lands in the Americas. The US government signed and ratified treaties with Native Americans to essentially purchase these millions of acres of lands with promises that have

for the most part never been kept.



These treaties also gave the US government the rights to evict Indians from their lands. Between 1777 to 1871 [34] (Edwards 2012)

> ***"The federal government signed more than 400 Indian treaties …, with tribes usually receiving various payments and benefits in return for ceding land…..State governments, settlers, and businesses pressured the federal government to seize Indian lands for their own use, and more than 100,000 Indians from the Southeast were pushed off of their lands and moved to reservations west of the Mississippi River."***

In the 1830s, all tribes were removed from east of the Mississippi River and many were sent to the Oklahoma Territory. In the West, many tribes were relocated to reservations on greatly reduced land areas. The ceded land area compared to the current Yakama Nation reservation is shown in the map to the right. The reservation lands represent approximately 11% of the ceded land area (www.yakamanation-nsn.gov/docs/CededMap0001.pdf). The blue line demarcates the current Yakama Reservation boundaries and the red line demarcates the ceded area. This is of course not the total land area that had been used to collect resources by tribes now living on the Yakama Nation reservation. These lands were a small fraction of what each tribe had historically used. For the Yakama Nation, they gave up "over 4.9 million ha of land. But tribal elders have said that their distance of travel sometimes took them as far north as Canada and as far south as California." (www.yakamanation-nsn.gov/history2.php). Therefore, the amount of land area lost by each tribe was significant.

It was not uncommon for lands designated to become reservation lands to be further reduced in area before the papers were officially signed. Some tribes, like the Yakama Nation, had their reservation lands made available for white settlement.

> ***Although the Treaty was signed on June 9, 1855 it did not become valid until ratified March 8, 1859 by the U.S. Senate and proclaimed law by the President on April 18, 1859. And just one month after the treaty was signed Governor Stevens through northwest newspapers declared all ceded lands open and available for white settlement."*** (www.yakamanation-nsn.gov/history2.php).

It was the norm that tribes lost a considerable of their customary lands when they signed treaties with the US government. The tribes, e.g., Cayuse, Umatilla, Walla Walla, who form the Confederated Tribes of the Umatilla (CTUIR) ceded 2.6 million ha in exchange for 206,390 ha [14] (Miller 2012). Since the surveyors incorrectly measured the reservation boundaries, these tribes only received about half of this land (99,148 ha). Similar to what occurred with the Yakama Nation, the CTUIR also had parts of the reservation opened up to non-Indian immigrants so this area was further reduced in area. The city of Pendleton was given 259 ha of CTUIR land [14] (Miller 2012). Eventually the reservation was reduced to a total of 63,940 ha or just a little over 2.4% of their original customary lands.

The Hoopa Valley Tribe lives in present day California. This tribe has a reservation that is 38,850 ha which is about 50% of their customary territory [14] (Miller 2012). The Hoopa Valley Tribe has a smaller percent of its lands (3%) "owned in fee simple by non-Indians while the Tribe still owns 95 percent of the reservation in trust with the United States" [14] (Miller 2012). They have fewer non-Indians living on their reservation lands because of their remoteness.

Our next story documents how the establishment of the Yellowstone National Park in 1872 resulted in the relocation of Native Americans who had used the park area going back more than 11,000 years [35] (NPS 2012). This occurred even though [35] (NPS 2012)

> ***"…many groups of Native Americans used the park as their homes, hunting grounds, and transportation routes."***

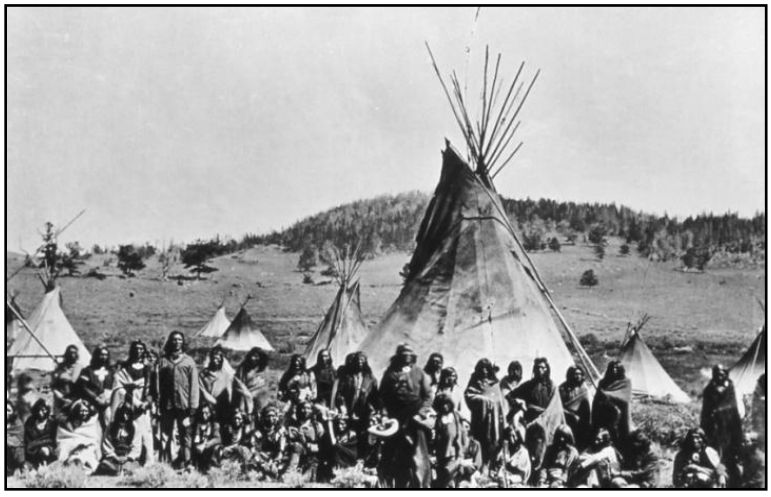


Photo 3 on the left is a picture of Washakie and his warriors taken in 1871 in what was to become Yellowstone National Park (Source: [35] NPS 2012). It shows the large number of tribal people who lived and hunted in this new park but were soon to be no longer allowed on their customary lands.

Since the US federal government was at war with the Native Americans, the military was used to enforce who would have access to the newly formed Park territories. The military built a War Department Station at Old Faithful in Yellowstone. This Station was used to house the military so they were well positioned to remove Indians (see picture on left) and to keep Indians from re-entering the park (see picture on right) (Photo 4).

Photo 4. Left picture: War Department Station at Old Faithful; Haynes; ~1917.); Right picture: Colonel Gardiner - took part in the Nez Perce retreat across Yellowstone National Park; Photographer unknown; ~1877 (Source: [35] NPS 2012)

In 1886, or 14 years after the establishment of the Yellowstone National Park by the US Congress, poaching of large animals and other administrative needs led Yellowstone National Park to be placed under the management of the United States Calvary. There is a reason that the hats worn by today's Park Service employees look like the hats worn by the federal troops sent into protect this new park! The federal troops were from the cavalry and wore campaign hats that were then adopted as symbols of authority by the Park Service [36] (Webster Dictionary 2012).

The Calvary managed and guarded the gates and borders of Yellowstone until 1917. Native Americans were not allowed to enter Yellowstone National Park and to practice their traditional culture until just 11 years ago – more than 115 years after they were originally evicted [37] (Objiwa 2010).

"In 2001, Yellowstone National Park changed its entrance fee policy to allow members of "affiliated" tribes to enter the park for traditional purposes without paying the recreation fee".

When Native American and the US clashed was not good for the Native Americans [38] (Echohawk 2010). The 1492 populations of Native Americans, now comprising the US, were estimated to be 5,000,000 people. By 1900, only 250,000 Native Americans remained.

The reduction in land holdings was a similar story. Total acreage of the US is 0.9 billion ha. All this land was originally held by the Native Americans. By 1881, the Native American land holdings had dwindled to 63 million ha. By 1934, the land holding diminished to 20 million ha. The amount of land held by Native Americans today is approximately 2% of the total land they originally owned.

In 1849, gold was discovered at Sutter's Mill, which started a gold rush into California. Shortly after that, new gold discoveries in the Northwest and Alaska caused a rush northward. As this wave of gold miners and pioneers flooded north, much of the land appeared unoccupied to them. While they may have been important food gathering areas to the tribes, throughout much of the year they were not occupied. There was also a major de-population taking place from disease and starvation at the same time. The result was that tribes were rapidly moved onto reservations. There was a major treaty making period in the mid 1800s, tribes agreed to sell lands for reduced homelands in exchange for promises for economic development, educations, health care, and other items in the treaty making process.

This continued up to the present for tribes that did not make treaties. The Colville Reservation

was created in 1872, they did not make treaties, primarily since they were amongst the last lands settled in the US due to isolation and distance from main Euro-American pioneer migration routes. The tribes also put up resistance and held out behind the natural barriers of the Okanogan and Columbia Rivers in north central Washington. The problem facing tribes is their limited access to their traditional food gathering sites. The prime natural food gathering sites were also often times the prime agricultural lands for the incoming settlers. The reduced land holdings within reservations made it impossible for them to all subsist on traditional food gathering culture, there was not enough land to support them.

So developing alternative economies and adapting to losses of customary lands and foods became an essential part of life for all American Indians. This transition is still taking place today and is not complete. There is still high unemployment on the Colville Reservation with a lack of business and industry. The Reservation is rugged and mountainous and far from the market centers of the Northwest. The US has also adopted special property policies and laws for the control of contemporary tribal lands, which differ from normal non-Native lands. This is mainly under the control of the US Bureau of Indian Affairs based in Washington DC.

What happened during the establishment of the Yellowstone National Park, as well as when tribes were evicted from their customary lands, are emblematic of the Euro-Americans approach towards indigenous communities. Native Americans were forced off their lands, or had their land area drastically reduced in extent. The three examples given above had tribes living on 2.4 to 11% of their customary lands or 50% if they lived in more remote areas or fewer non-Indians wanted their lands. They lost all rights to live in the ceded lands. They also were unable to

collect traditional foods from their ceded lands even though treaties gave them rights to collect resources from the ceded lands. Tribal leaders had reserved the right to fish, hunt and gather their traditional foods on the reservations as well as the ceded areas in the treaties they signed.

These stories exemplify our river metaphor where the upslope people are the Native Americans and the downstream people are the Euro-American settlers.

3.2.1.2. Termination

The net effect of the US policies from the 1700s onwards to 1975 was to effectively preclude tribes from developing and benefitting from their own resources and developing their own economies. US policies were generally intended to strip away anything valuable that Native Americans might own and to move them onto smaller and smaller areas of lands that at this time had no or little perceived value. Finally, even these lands with no value were to be taken from Native Americans when the termination policy of the 1950s began to be implemented.

In the 1950s and 1960s, the federal government terminated the existence of 109 tribes. House Concurrent Resolution 108 states that the government would pursue a policy to end Native American status as wards of the government. These policies remained in place until there was a policy shift in 1975 to end the termination of tribes and to pursue a policy to strengthen tribal governments. This was marked by the passage of the 1975 Indian Self-Determination and Education Assistance Act; so tribes were now in control to begin the process of rebuilding their societies and economies [39] (Indian Self Determination & Assistance Act 1975).

Even in instances where tribes did retain some assets, the Bureau of Indian Affairs adopted a lease policy which effectively made tribes passive of their lands and resources. Tribes collected relatively small rents and royalties, with the bulk of benefits and profits and jobs going to non-Indians. Furthermore, technology was kept in the hands of outside corporations and tribes were kept in the dark.

The impacts of evicting Native Americans from their lands were acknowledged in 2000 by Glover when he apologized to Native Americans for the actions of the Office of Indian Affairs (BIA). He spoke and wrote [33]:

> ***"…From the very beginning, the Office of Indian Affairs was an instrument by which the United States enforced its ambition against the Indian nations and Indian people who stood in its path. And so, the first mission of this institution was to execute the removal of the southeastern tribal nations. By threat, deceit, and force, these great tribal nations were made to march 1,000 miles to the west, leaving thousands of their old, their young and their infirm in hasty graves along the Trail of Tears…"***

After removing tribes from their homelands and onto reservations, and destroying their traditional economies and ways of existence, the tribes were left in deplorable conditions. The assimilation of Native Americans into Euro-American societies, however, was just starting. Children were especially vulnerable to these assimilation policies. To make Indians into good Euro-Americans, they needed to be removed from their families and taught a useful trade. They were punished when they spoke their native languages and were not allowed to practice their cultural traditions. Any remnants of culture, languages and traditions were to be removed so the children would become civilized. Civilized meant you looked, acted and behaved like a Euro-American. What is amazing is that these policies continued until the last decade. They were not

just something that happened several hundred years ago. A brief review of the assimilation policies is warranted to show the assimilation policies targeted the elimination of culture that was critical for the survival of a people.

3.2.1.3. Assimilation

"Let me be a free man, free to travel, free to stop, free to work, free to trade where I choose, free to choose my own teachers, free to follow the religion of my fathers, free to talk, think and act for myself --and I will obey every law or submit to the penalty"

~ Quote from the 1879 Chief Joseph speech at Lincoln Hall, Washington DC ~

At the same time as tribes were being relocated and terminated, the US adopted policies intended to mainstream Indians into the US society. Assimilation policies were designed to complete the Native American transformation or breaking away from past traditions and forcing them into new traditions. Several strategies were attempted to forcibly assimilate Native Americans into the Euro-American society and lifestyles. This assimilation was the ultimate form of becoming civilized. The primary mission was to abolish all traces of traditional tribal cultures and to physically relocate Native Americans into urban areas. The hope was that Indians would be absorbed into mainstream US society and disappear - the Indian problem would then be solved. Many Indian children were virtually kidnapped and placed into foster homes and adopted out to non-Indian families.

Manifest Destiny required the conversion of Native Americans to European derived religions. It was used to justify eliminating Native Americans and any trace of their culture as noted in the 1707 writing of John Archdale [40]:

> ***"And courteous Readers, I shall give you some farther Eminent Remark hereupon, and especially in the first Settlement of Carolina, where the Hand of God was eminently seen in thinning the Indians, to make room for the English....it at other times pleased Almighty God to send unusual Sicknesses amongst them, as the Smallpox, etc., to lessen their Numbers..."***

The churches were an important tool used by the federal government to control Native Americans. They believed that tribal religious and cultural beliefs were retarding tribal progress. To solve this problem, churches were given operating franchises to tribes so they could convert Indians. This was a federally regulated process and church's had to get a federal permit to proselytize Indians.

The Manifest Destiny was now being implemented by religious institutions in charge of converting Indians to western European beliefs. Traditional Native American religions were considered to be pagan and unacceptable by Euro-Americans. They did not recognize that the Native American culture have a diverse variety of nature-based religions among the different tribes (see Box 5).

Box 5. Native Spirituality Today (by Kimberly Craven - Sisseton-Wahpeton Oyate) [41]

"Historically, those who weren't American Indian were confused, sometimes downright antagonistic, about the spiritual practices of American Indians. They had a difficult time understanding the spiritual practices of native people that were so different from the religious practices they knew and practiced. They were used to attending church and studying the

scripture – the Bible or the Torah. With American Indian spiritual practices, nothing was written down and worship wasn't necessarily held in buildings. Oftentimes these practices were based in nature, held outside and, then as now, information was imparted on a need-to-know basis.

…It wasn't until 1976 when the American Indian Religious Freedom Act (AIRFA) was passed that native people were guaranteed the freedom to practice their traditional religions. …

…Washington state's First People engage in their own unique spiritual and religious practices. Some practices are ancient, like the Washat longhouse religion that flourishes today among the Confederated Tribes and Bands of Yakama Nation and Upper Plateau peoples. …Some spiritual practices are newer and are a hybrid of traditional beliefs cou0pled with mainstream religions. The Shaker Church is an example of this. …"

The Euro-Americans did not appreciate the natural or environmental aspects of Native American religions. This is understandable since most of the European religions were formed at a time when the environment and nature were not an important aspect of religion, e.g., they are not part of the scriptures. Even religions that formed after the European conquest of other global societies acknowledged environmental problems but mostly did not formally include it in their religious practices.

A large percentage of Native Americans today practice their traditional religion and the adopted religions that were introduced to by the Euro -Americans. Tribes practice several religions at the same time and accept parts of a religion without eradicating their own religion. Several New Age religious practices (of both Native Americans and other people) also encompass various aspects of Native American religions.

The assimilation policy had a goal of converting the Native Americans to think, act, look and behave like western Europeans (see Photo 5). In the boarding schools, children were made to look like and act like people who you could have found walking the streets of Europe. When

dressed in Western Europe clothing, anyone could appear civilized.

Photo 5. LEFT: Chiricahua Apaches four months after arriving at Carlisle. Source: Richard Henry Pratt Papers, Beinecke Rare Book & Manuscript Library, Yale University; RIGHT: American Indians dressed in western clothing. Source: //en.wikipedia.org/wiki/File:Assmilation_of_Native_Americans.jpg.

The idea behind most of this was to remove the cultural and traditional underpinnings of Native American children, i.e., civilize them by having them adopt the lifestyle and religions of their conquerors. Indian children were virtually kidnapped and sent off to far away US boarding school to further erase all tribal culture and to cut off ties with their families. Others were sent off for adoption into non-Indian families. It was against the law to speak your own language, to wear traditional clothes, to wear your hair in a traditional fashion, or to even have gatherings of more than three Indian males in one spot. As with the Blacks in the US, Indians were prohibited and segregated and were often banned from eating in restaurants and cafes and bars.

Their children were removed and educated in western educational institutions or boarding schools that were run by different western religious denominations. Boarding schools were created to separate children from their families and culture to assimilate them into the

mainstream society. Thousands of Native children were forced into attending these schools and did not return to "their homes until they were young adults" [42] (UN 2010). Boarding school were established all over the country and [42]

> ***"By 1909, there were over 25 off-reservation boarding schools, 157 on-reservation boarding schools, and 307 day schools in operation."***

These boarding schools were first established by Christian missionaries who were paid by the federal government to educate Native American children who lived on reservations. Eventually the BIA founded more boarding schools similar to the Carlisle Indian Industrial School which were off-reservation (see Photo 6). The photo shown below is from the Carlisle Indian Industrial School in Pennsylvania that was one of the first off-reservation boarding school founded in 1879 [42] (UN 2010).

Photo 6. Carlisle Indian Industrial School in Pennsylvania (c. 1900) Source: www.texasbeyondhistory.net/forts/images/carlisle.html

Church groups were given franchises to convert Native Americans into Christians. This quote by Adams published in 1995 summarizes the process of civilizing the Indians in boarding schools

[43]:

> ***"Indians must be taught the knowledge, values, mores and habits of Christian civilization...Since the days of the common school movement, the schoolhouse had come to achieve almost mythological status. Reformers viewed it as a seedbed of republican virtues and democratic freedoms, a promulgator of individual opportunity and national prosperity, and an instrument for social progress and harmony. Moreover, because of the common schools alleged ability to assimilate, it was looked upon as an ideal instrument for absorbing those peoples and ideologies that stood in the path of the republic's millennial destiny."*** (Adams 1995)

Studies done in the 1970s showed that up to 25-35% of all Indian children had been removed from their families and placed into non-Indian care [44] (George 1997). The intent of the boarding schools was to train young Indian females to be future wives for non-Indian settlers. The government even sponsored posters advertising their availability. What is amazing that the number of Native Americans enrolled in these schools only peaked in 1970. In 2007, some American Indian children were still in boarding schools.

The 2010 United Nations report summarized the history of the boarding schools and the attempts to assimilate Native Americans into western European culture [42]:

- *"…19th and early 20th centuries, Native American children were forcibly abducted from their homes to attend Christian and government-run boarding schools as state policy. The boarding school system became more formalized under the Grants' Peace Policy of 1869-1870, which turned over the administration of Indian reservations to Christian denominations. Funds were set aside to erect school facilities to be administered by churches and missionary societies.*
- *…The rationale for off-reservation boarding schools was "Kill the Indian in order to save the Man" as well as "Transfer the savage-born infant to the surroundings of civilization, and he will grow to possess a civilized language and habit." The strategy was to separate children from their parents, inculcate Christianity and white cultural values upon them, and encourage or force them to assimilate into the dominant society. For the most part, schools primarily prepared Native boys for manual labor or farming*

and Native girls for domestic work. Children were also involuntarily leased out to white homes as menial labor during the summer rather than sent back to their homes.

- *…Boarding schools were administered as inexpensively as possible. Children were given inadequate food and medical care, and conditions were overcrowded. According to the Boarding School Healing Project (BSHP) Native children in South Dakota schools were rarely fed and as a result, children routinely died in mass numbers of starvation and disease. Other children died from common medical ailments because of medical neglect. In addition, children were often forced to do grueling work in order to raise monies for the schools and salaries for the teachers and administrators. Children were never compensated for their labor.*
- *…Many survivors report being sexually abused by multiple perpetrators in these schools. However, boarding school officials refused to investigate, even when teachers were publicly accused by their students. There are reports that both male and female school personnel routinely abused Native children, sometimes leading to suicides among these children."*

Many of these dislocated and shattered tribal communities really have not recovered from these actions yet today. There is still massive unemployment on many of these reservations and there has never been a replacement economy created to take the place of the buffalo based economy which existed prior to the arrival of the European colonialists. The buffalo-based economy was central to many Native American tribes which explain why such efforts were made to remove buffalo from the Great Plains.

3.2.2. Removal of Buffalo for Manifest Destiny

One of the first tribal resources to be eliminated was part of a military strategy to remove buffalo from the Great Plains in the 1800's. The buffalo, a resource that favored one group, the Native Americans, was eliminated and replaced with farms and cattle to favor another incoming group, the settlers. This pattern would be repeated in the Northwest with salmon who were sacrificed so that dams could be built to produce electricity. The following information for buffalo was taken from a fact sheet produced by the South Dakota Department of Game, Fish, and Parks [45] (Svenson 1995). On the Great Plains, buffalo were once numerous and they were central to the

lives of Native American people. Bison populations are estimated to have been 60 million, but by the late 1800s this number had dwindled down to 1,100 animals.

Over thousands of years, the Native American culture and society on the Great Plains evolved to maximize utilization of the vast herds of buffalo. The Native American villages were mobile, they could follow the herds and a nomadic culture evolved to take advantage of the mobile bison herds. The buffalo provided the food, clothing, housing, tools, and weapons needed for survival. Their society was organized around the buffalo; it was a part of their religion and core values as a society. They hunted communally and the buffalo was shared with the weak and strong, with the old and the young. This societal reciprocity and high value placed on sharing was highly valued. All aspects of their life depended greatly on the buffalo. My own people (MM), now comprising the Colville Tribes of eastern Washington, also hunted buffalo each year. About half the tribe fished for salmon and the other half rode by horses onto the Great Plains to hunt buffalo and to trade. The buffalo had a major impact on the lives of many Native Americans.

To defeat the Plains tribes, the US had a policy to exterminate the buffalo in order to take away one of the key resources of the Native Americans. Buffalo were hunted and slaughtered to near extinction. Commercial hunters were encouraged. Indians were also involved in this carnage and also participated in the commercial operations. This elimination of the buffalo had two benefits for the US federal government. One was to defeat the Native Americans and help force them onto reservations. The other reason was to open up these grasslands for domesticated cattle and for agriculture.

Likewise it was also common for the US military to slaughter the horses of Native Americans to take away their mobility. Horses were central to their economies, to gather foods, to hunt, and to trade.

Faced with starvation and freezing weather, many tribes were forced onto reservations and made dependant on US food and clothing handouts. Many of their societies were on the brink of collapse. Removal to reservations had cleared the way for settlement of the West, but the displaced Native Americans were still in dire need.

Not only buffalo but salmon was lost from the diet and culture of Native Americans living in New England, Atlantic Maritime Provinces of Canada and in the Pacific Northwest (PNW) US. In contrast to buffalo which were systematically exterminated, the loss of salmon was not a targeted strategy to kill Native American cultural foods. On the east coast of North America, over-fishing of salmon by Euro-Americans to supply British fish markets caused the collapse of the salmon fisheries already back in the 1700s [21] (Trefts 2004). On the west coast of the US, building dams to provide inexpensive electrical power to the growing urban population centers caused the loss of the salmon fisheries (see 3.2.4). The pre-European robustness of the salmon fisheries in the Pacific Northwest US will be described first. This will be followed by a brief discussion of the impacts of building the Grand Coulee dam on tribal lands and tribal loss of cultural resources, i.e., salmon.

3.2.3. Removal of Salmon in the Pacific Northwest

The story for salmon based tribes in the Pacific Northwest (PNW) US is very similar to the story of the buffalo for the Plains tribes and the story of oil drilling on Indian lands. The motivations may have been somewhat different in the details but at the larger framework, the story is very much the same. Tribes had been utilizing a natural resource, the salmon, for thousands of years. However, the incoming settlers wanted to redevelop the natural environment and shift these benefits onto the non-Indian settlers and their businesses and other interests.

Before the construction of dams, armoring, dikes and other barriers, all the rivers and streams had salmon. Many coastal tribes fished for salmon in the ocean. Historically, PNW US tribes have fished for salmon on the Columbia River for at least 10,000 years, since the last ice age at a minimum (see photo on right of Salmon Chief Tommy Thomson; Note the size of the salmon hanging from the rafters. Photo Source: Yakama Valley Museum. www.yakimamemory.org).

The PNW Native American societies were salmon dependant (see Box 4). The Columbia River was the backbone for the salmon and the Native Americans. It provided food. It provided the transportation on its waters. The river was central to their existence. The importance of the salmon fisheries is described for Kettle Falls below. The large size of each salmon was even noted on the Atlantic coast of the Americas. Trefts [21] (2004) recounted how the early

colonialists to Massachusetts noted in 1634 "...no country known to Europeans yielded "more variety of fish, winter and summer … for trade into other countries."

Box 5: GREAT SALMON FISHERIES AND KETTLE FALLS

Kettle Falls was one of the great fisheries of the world. The thundering falls was 50 feet tall. The keepers of the falls were the Arrow Lakes people, the Sinixt people. This area was primarily the homeland of the Sxwi?yilp or Colville Tribe or Band. They also had a salmon chief and he regulated the fishery. They utilized all types of fishing methods, but they were unique in that they utilized basket traps. They made huge baskets thirty feet long and placed these at the foot of the falls. When the thousand of salmon made their leaps to get over the falls, thousands of them would fall shot and land in the baskets. Early explorers in the region were astounded at the multitudes of fish, they counted two thousand fish being pulled out of a single trap in one day, and they were also astounded that the fishermen exercised restraint and stopped fishing when the salmon chief so ordered them to do so. They remarked that they did not think that the white man could restrain himself enough to stop. There is a written account from Jesuit Priest DeSmet in 1845, where he wrote [46],

"My presence among the Indians did not interrupt their fine and abundant fishery. An enormous basket was fastened to a projecting rock, and the finest fish of the Columbia, as if by fascination, cast themselves by dozens into the snare. Seven or eight times a day, these baskets were examined, and each time were found to contain about two hundred and fifty salmon…" (NW Power Planning Council)

Kettle Falls was a major gathering place. Each summer about five thousand Indians would gather there to fish and to trade. It was a major trade center. Tribes visited from all over to see the falls and to trade. Artifacts have been found there from all corners of the continent. Raw materials and products were brought in, there were craftsman at the falls, and trade took place.

The salmon themselves were a major trade commodity. Thousands of salmon were caught and most of the fish were dried on racks in the sun and they were put into bales. These bales were stacked up and eventually they would be brought downriver and traded up and down the Pacific coast and also taken into the Great Plains for more trading.

The 10,000 years of salmon fishing at Kettle Falls ended in 1942 with the construction of the Grand Coulee Dam. The Dam was the most massive construction project of its time and it is still the largest hydroelectric dam in North America. The dam was built under the US Bureau of Reclamation. It is the key for a massive irrigation project that diverts water from the Columbia

River southward into the Columbia Basin to support agriculture over a hundred miles from the dam itself.

The WCD Report states, “Due to neglect and a lack of capacity to secure justice because of structural inequities, cultural dissonances, discrimination, and economic and political marginalization, indigenous ad tribal peoples have suffered disproportionately from the negative impacts of large dams, while often being excluded from sharing in the benefits” [47] (WCD 2000). The US political and legal system had forcibly put tribes under the trusteeship of the US government under paternalistic policies which severely limited their ability to defend their own interests in protecting their resources and ways of life. The US wanted hydropower development and the First Nations people were in the way of progress.

In the northwest US, the population of Native Americans was estimated to be 100,000 prior to the coming of the white man. By 1850, this number had dwindled to 10,000 Native Americans. Then there was a major influx on settlers and immigrants into the region and by 2000, the northwest population had grown to 11,000,000 people. Much of this can be attributed to the availability of abundant electricity and the rapidly growing economy made possible by the energy produced inexpensively by hydro-electric dams.

For the Colville Tribes, the loss of salmon was the worst impact of building the Grand Coulee dam. The dam was built and there are no fish ladders on the structure. The salmon literally swam upstream, ran into the dam and had no place to go in 1942. So 10,000 years of life based on the return of the salmon came to an abrupt halt that year. The salmon based culture and

economy was devastated. One day they were fishermen, but now there were no fish. The main food source was gone. Salmon was also a trade commodity; the basis for their trade was gone. For thousands of years the Colville peoples were wealthy and the salmon were abundant, but then they were gone. Their economy is shattered and still has not been replaced.

3.2.4. Building dams on tribal lands

Early American cities of the 1700s were often located on rivers and one reason was to utilize water wheels to provide power to grind flour, and provide horsepower to early efforts at industrialization, e.g., to produce textiles. This is where the dams were built since the power of the rivers was needed to provide the horsepower for industries.

The early use of water wheel technology to power industries located along rivers eventually gave way to hydroelectric power. Water was converted into electricity. The World Commission on Dams Report states that, "The first use of dams for hydropower generation was around 1890." The Report continues, "By 1949, about 5,000 large dams had been constructed worldwide…by the end of the 20th century there were over 45,000 large dams in over 140 countries [47] (WCD 2000).

Colville women, Ceremony of Tears, 1940. (*Courtesy UW Special Collections (Image No. L96-90.38)*

This takes us back to the building of the Grand Coulee Dam on tribal lands in the Pacific Northwest US. There were many benefits to the Euro-American settlers who settled the Pacific

Northwestern US from the building of this dam. This dam was considered to be the Eighth Wonder of the World. Its construction actually began in 1933 and final construction of the Third Powerhouse was not completed until 1974. The initial dam construction was completed by 1942. It is still the largest concrete structure in the world and contains 9.2 million cubic m of concrete. It is 1.1 m wide and 168 m tall. There is enough concrete to build a 18 m wide highway from Los Angeles to New York City. It is four times larger than the Great Pyramid. Total generating capacity is 6,809 megawatts and is the fourth largest power producer in the world today.

The Native Americans way of life was destroyed, but this allowed the non-Indian Northwest economy to flourish and prosper. US Senator Clarence Dill summarized the benefits of the Grand Coulee dam when he spoke at the Ceremony of Tears in 1940 (see Box 6).

Box 6: CEREMONY OF TEARS

One of the speakers was US Senator Clarence Dill and the War was on his mind that day, he said, "We can build more airplanes and tanks and can train more pilots for national defense than any other nation of combination of nations, and the quicker we do it the better…We know now that the only thing in this world which Hitler will respect is more force then he controls." [46] Dill acknowledges the terrible loss to the tribes but he hoped that the Indians would realize some benefit from the power that the dam would produce [46] (NWCouncil 2009). As a Senator, he could have done more than hope of course, he could have written these benefits into law if he had any real desire and this was never done of course. That would never happen for another half century of struggle.

High voltage transmission lines went south from the Grand Coulee Dam, crossed the eastern Washington plateau and fed power into the cyclotrons at the Hanford Project to play a major role in the development of the atom bomb and this led the way into the modern era of quantum physics with the high technology that we take for granted today. Other power went into the newly created aluminum industry which depended upon the abundant hydropower. This aluminum in turn went to the Boeing aircraft factories of Seattle and elsewhere to build up the war machine. One could logically argue that the present high technology industries of Seattle and Portland can trace their roots back to the construction of the Grand Coulee Dam and also perhaps to the 1940 Ceremony of Tears. One group was supposed to fade away into oblivion and a new people were to emerge out of their sacrifice. From an energy perspective, the power was transferred from the Native Americans and the salmon to the newly emerging economies.

Many benefits accrued to Euro-Americans living in Washington State from the building of the Grand Coulee Dam. First, people were employed to build the Grand Coulee Dam. The construction work force was 10,000 workers. This dam provided irrigation for 1400 farms; total irrigated lands amounted to 276,000 hectares, and farm revenues generated $637 Million dollars in income [47] (WDC 2000).

Subsequent to the construction of the Grand Coulee Dam, seven more dams have been built on the upper Columbia River, the original homeland of the Colville Tribes (see Table below).

Dam Name	**Amount of Electricity Produced by the Dam**
Mica Dam	1,805 MW
Revelstoke Dam	1,980 MW
Keenlyside Dam	185 MW
Grand Coulee Dam	6,809 MW
Chief Joseph Dam	2,620 MW
Wells Dam	840 MW
Rocky Reach Dam	1,287 MW
Rock Island Dam	660 MW
TOTAL MW	16,186 MW

Three of these dams are located in Canada, the homelands of the Arrow Lakes people, now members of the Colville Confederated Tribes. The Arrow Lakes people have been declared

extinct by Canada and their lands were confiscated. Currently there is an aboriginal title case pending in the Canadian legal system. The aboriginal, traditional homelands of the Colville Tribes now support a tremendous hydropower resource, which benefits the entire Pacific Northwest economy today.

The primary benefits of the dam itself targeted off reservation communities. This dam provides many benefits to regional non-Indians because it is able to control regional water supplies and therefore energy production derived from hydropower. Massive irrigation systems flow south into the Columbia Basin Project to irrigate vast farm lands. Transmission lines carry the power into the Bonneville Power Administration grid system to service the west coast. There were many negative impacts of building the Grand Coulee Dam on the American Indian tribes who lost their customary lands and an important cultural resource, the salmon. This is another example of the upper river and down river analogy with tribes being the upper river people who paid all the costs and derived few if any benefits from building a dam on tribal lands. The negative impacts of building the Grand Coulee dam on lands of the Colville Confederated Tribes will be described next.

3.2.4.1. Negative impacts of Grand Coulee Dam

The completion of the Grand Coulee Dam in 1942 represents a major renewable energy project that had major national impact on the US. There is a general belief that renewable energy is good, a win-win for all. Hydropower is generally viewed as a clean source of energy. Most of the public is probably not aware of the negative consequences of large hydropower. Hydropower favors some groups and creates problems for others. The Grand Coulee Dam, “provides a vivid

example, Native Americans were physically displaced by a project that provided power to industry and households to a city 250 km away [and the] water and land that had previously supported their livelihoods (particularly for fishing) was dammed and diverted to provide white settlers with irrigated farmland" [47] (WCD 2000).

For many years, despite being in the shadows of the largest dam in the world, many of the Native Americans did not even have electric service in their homes. The WCD Report states, "the Grand Coulee Dam Case Study reports that the loss of salmon also had severe cultural and spiritual consequences integral to the First Nations way of life" [47] (WCD 2000).

This was not a new story, and just as it started with the removal of the buffalo, it would be repeated with additional dams and new projects in the future. From 1940 onward, the Native Americans impacted by the Grand Coulee Dam began their long struggle to cope with the new world dropped on them and to make sense of it all again.

Salmon once sustained the Native Americans and their economies for ten thousand years. This all came to a halt in 1941, when the Grand Coulee dam neared completion. This dam did not have any provisions for salmon passage at all. Thousands of salmon and steelhead showed up to the headwall of the dam and had nowhere to go. One of the greatest salmon fisheries on the planet, the great Kettle Falls fishery was inundated and there were no more salmon at all (see Box 7). The Native American Arrow Lakes people, the keepers of the falls for 10,000 years, were put into instant poverty, their jobs as fishermen were now gone and their main food source the salmon were gone, and their main trade commodity, the salmon, was also gone forever. The

great dam forever displaced Arrow Lakes people from their ages old ways of life.

Many communities were also displaced and either disappeared or elsewhere moved to higher ground. Many individual homes and many traditional village sites along the Columbia were also submerged along with associated cultural resources when the dam was built. Cemeteries also had to be moved out of the flood zone. The banks keep slumping in and more ancient remains were uncovered each year.

Box 7. ATLANTIC FISHERIES [21] (from Trefts 2004)

When the European explorers first arrived on the Atlantic coast of America, the transformation of river systems by building dams for power triggered the demise of the Atlantic fisheries. Impassable dams were already being built in early 1600s to power mills built along rivers. After 1790, this region began to industrialize and number of dams built increased dramatically. Industrialization meant building dams "throughout New England to supply power to hundreds of cotton and weaving factories and to factories producing firearms, furniture, clocks, machine tools, shoes, and paper". Trefts [21] (2004) wrote how "… routine dumping of refuse, untreated waste, animal carcasses, dyes, chemicals and many other industrial byproducts turned the Merrimack and many of its tributaries into virtual sewers." Fishery stocks crashed or became depleted in the 1800s in the rivers located on the Atlantic coast of the Americas. The depletion of Atlantic fisheries is in sharp contrast to what the European colonialists found when they first arrived on the Atlantic coast of America. The fish of the Atlantic coast of the Americas was valuable enough that "European explorers … recoup the trans-Atlantic shipping costs." Fish stocks were considered to be inexhaustible even up to World War II and yet fish declines were already recorded in the 1800s.

The fabric of their society was obliterated, everything that was a foundation for their traditions and culture and economies were instantly gone. The results have been devastating. There was massive unemployment and poverty. Their society was made dysfunctional. Social problems were out of control, families broke down, alcoholism was killing people like flies, suicides were high, many went to jail, and it is a sad litany of one bad thing after another. Many of the young men joined the military. They came from a warrior culture and after all, what else was

there to do? Native Americans on a per capita basis serve their country in the military more so then any other group in the US and this continues today.

So, for WWII, the young Native Americans went off to fight in the big war and the dam produced energy for the war effort. The Grand Coulee dam played a key role in the war effort since it provided the energy for plutonium production and also for aluminum production, both key to the victory of the Allied military. But when the young soldiers came home, many got off the troops ships and hitchhiked cross country to get home, they found that their once Great Kettle Falls was no longer there. Kettle Falls was now out of sight and submerged underneath the approximately 241 km long Lake Roosevelt created by Grand Coulee Dam. There were no fish. There was no economy and no one was offering help.

Today, the Grand Coulee Dam can be considered as one of the older renewable projects. Efforts by the affected Native American government to win compensation for damages from the great dam began after the tribe filed an appeal of a government payment to the tribe in 1946. The issue of payment for lands flooded was not resolved until half a century later, when the US Congress finally passed an act to provide a negotiated compensation amount. The WDC case studies "show that the direct adverse impacts of dams have fallen disproportionately on rural dwellers, subsistence farmers, indigenous peoples, ethnic minorities, and women" [47] (WDC 2000).

The salmon were gone and 10,000 years of prosperity from the greatest fishery on earth vanished. There were no salmon to eat. The once proud fishermen now had no fish, they were

out of jobs. The fish based economy was in shambles. The entire foundation of the tribe's culture and traditions was shaken to its roots. The reservoir behind the world's largest concrete structure was like a giant moat, it cut off all transportation from the bulk of the Colville Reservation, making economic development a difficult task that has yet to be solved. Two ferry boats now serve the Lake Roosevelt, but they are small and designed for limited car traffic. They are not suited for large volume commercial traffic. The prime river bottomlands with their rich soils were now at the bottom of the lake. Entire communities were relocated and many just disappeared.

The Colville Tribe has been a victim of energy development since 1942, with the construction of the Grand Coulee Dam on its border. This dam created major benefits for the Pacific Northwest in general, but the brunt of the costs fell onto the Colville Tribe [48] (Ortolano 2002). This massive Bureau of Reclamation project had giant positive impacts, creating huge amounts of electricity and providing water from the Columbia Basin irrigated agriculture. It has been a catalyst for development of northwest economies. Unfortunately, the dam stopped all salmon runs, thus the Colville Tribe's entire way of life was destroyed, the fishing based economy was obliterated, and the tribe's culture and religion, based on the salmon, were also devastated. The reservoir behind the dam is 289.7 km miles long and is over 1.6 kv wide in many places, forming an effective moat around the majority of the Colville Reservation, creating a major transportation barrier, which impedes present and future access, and hence, economic development also.

With the building of the Grand Coulee dam, losses to the local tribes include not only real estate with mineral rights (gold and other low grade ores), but also the salmon and other native animals

used by the tribes for their livelihoods, or for cultural reasons. There is a legacy's of chemical misuse which has created a Super Fund Site in Colville. At the same time, tribes living on the Colville reservation have to survive on a smaller land-base and be resilient (culturally, etc.) from what remains of their customary lands.

This continues today with the addition of wind-turbine power around the Grand Coulee area. A problem occurs approximately 60-90 days out of the year when there is too much electricity generated by the two separate sources; during 2012 the power company was not going to accept electricity generated by wind power. This additional energy generated by wind cannot be stored, so the generation of electricity at the dam site is halted. This creates a situation where users are actually subsidizing the wind power developers.

The lands above the Grand Coulee Dam are amongst the poorest in the US. There is chronic high unemployment and poverty for both Native Americans and for the non-Indians living upstream from the dam. Major socioeconomic problems abound, ranging from high suicide rates, drug and substance abuse problems, high dropout rates from school, and the list goes on and on. Billions of dollars of benefits have been streaming out of the Grand Coulee Dam since 1942, but there has been only minimal investment to mitigate the negative impacts to the Colville Tribe and the original salmon based economies have not been replaced by adequate alternative economies.

There was no plan or intention of replacing the livelihoods of the Native Americans when their economies were destroyed and the region is still economically depressed. The WDC Report

concludes that replacing the livelihoods of displaced indigenous peoples requires planning and preparation beforehand, "Regaining lost livelihoods requires adequate lead time and preparation and therefore people must be fully compensated before relocation from their land, house, or livelihood base" [47] (WCD 2000). But this was not considered by the US in its hydropower development policies and the Colville Tribes will likely still be striving for mitigation well into the next century for damages from the Grand Coulee Dam project.

Other negative impacts of building the Grand Coulee Dam are:

- It was not only the loss of salmon to Native Americans and the loss of a major trade center, but it was also the loss of anadromous fish habitat
- There were impacts of the upstream and downstream ecosystems and other animals that depended upon anadromous fish populations
- Decrease of surface water quantity and quality consumed for agriculture and the over-permitting of water resources
- Continual river bank destabilization has impacted developments, ecosystems, disturbed cultural resources and created the need for river bank stabilization projects including armoring
- Introduction of widespread intensive agriculture introduced toxic pesticides and fertilization
- Widespread agriculture also decimated thousands of acres of shrub steppe lands where Native people harvested traditional vegetable root crops, medicines, tools, etc. Agriculture has also uncovered many gravesites and other cultural resources that were buried by the building of the dam.
- The benefits of agriculture and irrigation were the primary objectives for the construction of grand coulee dam, however neither the Colville or Spokane tribe realized these benefits as all of the irrigation goes away from these reservations
- Until recently tribes didn't receive any electricity or energy benefits, in fact, residents on the Colville Reservation pay some of the highest utility rates in Washington State which is provided by Bonneville Dam. The electricity to the local area is spotty. The majority of the benefits from the dam are seen in areas such as Seattle and Portland. Downstream cities and towns receive the benefits while the citizens upstream receive all the adverse effects.
- Construction of Grand Coulee has created several artificial lakes and reservoirs that attract millions of tourists and sports fisherman each year. The Colville tribe has increased costs of because of the environmental damage and wild land fire management impacts. Tourists and sports fishermen have access of hundreds of miles of pristine coastline along the Colville Reservation where they park their boats and camp at sites which are inaccessible except by boat and difficult to patrol– the non-Indian side is

developed where they have to pay fees!

3.3. Contemporary context of Native American lands and resources

As part of looking at Native American sustainable practices, it is important to briefly review the history of how the Euro-American and settlers controlled land and resources on reservation lands. It is only within the last 30 to 40 years that Native Americans began to make decisions on how and what resources to collect from their lands. The basis of Native American rights and their relationships to the US government can be traced to treaties signed between 1778 and 1871 [49] (BIA 2012). The BIA [49] (2012) summarized this as the

> **"*rights, benefits, and conditions for the treaty-making tribes who agreed to cede of millions of acres of their homelands to the United States and accept its protection.*"**

Despite giving up millions of acres of homeland, the extent of the tribal customary lands was significantly reduced. This reduced the land area available where tribes could collect resources to generate income. The federal government took on the responsibility to make sure that Native Americans derived the income from their lands as part of their trustee responsibility. The Native American tribes, however, were poorly treated and their revenues stolen by the federal agency established to sell resources collected on reservation lands.

Tribes lost most of their lands and were put on reservations with other tribes that they historically fought wars. For example, the Confederated Tribes of the Colville includes the enrollment of the "descendants of 12 aboriginal tribes of Indians" (www.colvilletribes.com/2011___2012_ceds.php). There was not a rationale to why the US federal government forced certain tribes to be located on the same reservation.

The other problem with being put on a reservation is that Native Americans lost a significant amount of the land area they had customarily used to collect resources. This land area was a fraction of the lands that each tribe had before the arrival of the European colonialists. When these treaties were made and tribes gave up rights to their lands, tribal members lost access to resources over large portions of the Northwest US and Canada. This summary on the Colville Economic Development website describes this well:

> ***"Prior to the influx of Canadians and Europeans in the mid-1850's the ancestors of the 12 aboriginal tribes were nomadic, following the seasons of nature and their sources of food. Their aboriginal territories were grouped primarily around waterways such as the Columbia River, the San Poil River, the Okanogan River, the Snake River and the Wallowa River.***
>
> ***Many tribal ancestors traveled throughout their aboriginal territories and other areas in the Northwest (including Canada), gathering with other native peoples for traditional activities such as food harvesting, feasting, trading, and celebrations that included sports and gambling. Their lives were tied to the cycles of nature both spiritually and traditionally."***

Even when lands were set aside for tribes, the total land area of the reservation decreased several times after the original land area was identified as designated tribal homeland (see 3.2.1). For example, the Colville Reservation in "1872 through an Executive Order by President Grant… covered close to three million acres [1.2 million ha], lumping together numerous tribes who were not yet party to any treaty." Today, however, "the Colville Indian Reservation spans 1.4 million acres [0.6 million ha] of North Central Washington primarily in Okanogan and Ferry counties"; the area of the Colville reservation was reduced only three months after the original lands were dedicated to establish the reservation (www.colvilletribes.com/2011___2012_ceds.php). The

driver for this significant reduction in land area of the reservation was the discovery of gold on the Colville reservation.

Forests are an interesting lens to look at the challenges and changes in Native American ownership of resources located on the reservation itself. Rigdon [50] (2007) summarizes the importance of forests in delivering many of the cultural resources important to tribes:

> ***"Forests are a vital part of Indian communities due to the social, economic and cultural values the forests provide for tribal people. Reservation forest provides opportunities for economic development, employment and income, traditional hunting, fishing and food-gathering places and religious and cultural sanctuaries. Since time immemorial tribes have utilized and managed their forest for the resources they need."***

Reservation lands are held in trust by the federal government for the benefit of tribes. Therefore, most of the history of Native American and US federal government consists of the US government regulating resource uses and effectively being the owners of resources located on reservation lands. **"*This trust responsibility is rooted in the Justice John Marshall 1830s court decisions involving the Cherokee Nation in Georgia. In Cherokee Nation v. Georgia, Marshall found that tribes existed as 'domestic dependent nations' within the United States.*"** [50] (Rigdon 2007). Many policies were established by the US government to regulate how Native Americans could use the timber located on reservation lands. These policies were driven by goals to make Native Americans into farmers (see 3.1.1) so they would assimilate into the new American society.

It was not until the mid-1970s that Native Americans began to be able to manage their own resources themselves and to develop their own policies on how to control lands and resources.

The following are some of the shifting policies that regulated ownership and Native Americans use their forests [50] (Rigdon 2007):

- 1873 - US v. Cook in stated Indians had no right to sell timber unless land was being cleared for agriculture and the trees belonged to the US. Rulings in Johnson v. McIntosh and Cherokee Nation v. Georgia reaffirmed that reservation lands and resources belonged to the US government.
- 1887 – General Allotment Act gave individual ownership of land to individual Indians. This resulted in the loss of reservation lands to non-Indians and the reason for the checkerboard patterns of land ownership found onmany reservations.
- 1889 – 'Dead and Down Act' – gave tribes rights to collect dead trees and to sell them commercially. No live trees could be sold commercially.
- 1934 – Indian Reorganization Act directed the Secretary of the Interior to make rules to manage reservation forest lands in a sustained yield management approach. This Act also verified that Native Americans were the owners of the lands and resources located on reservations.
- 1975 – Self-Determination Act supported tribes "assuming the responsibility of managing many of the programmes once staffed by the BIA"
- 1976 – Tribes establish the Intertribal Timber Council to coordinate the management of timber on reservation lands.

The extent of the land area held in trust by the US federal government for tribes is large: 22.7 million ha [49] (BIA 2012). The US government administers about 326 Indian land areas as part of the reservation network. The BIA [49] (2012) described the powers held by tribal governments:

> ***"Tribes possess all powers of self-government except those relinquished under treaty with the United States, those that Congress has expressly extinguished, and those that federal courts have ruled are subject to existing federal law or are inconsistent with overriding national policies. Tribes, therefore, possess the right to form their own governments; to make and enforce laws, both civil and criminal; to tax; to establish and determine membership (i.e., tribal citizenship); to license and regulate activities within their jurisdiction; to zone; and to exclude persons from tribal lands."***

Despite signing over 370 treaties with tribes [49] (BIA 2012), the US federal government has not met many of its tribal fiduciary responsibilities. There is a history of tribes having to go to the US courts to acquire revenues generated from tribally owned resources. This has not been an

isolated case where revenues failed to be transferred to tribes. The US government obtained significant revenues from selling of tribal resources, e.g., oil, gas, grazing and timber, from reservation lands [51] (//m.spokesman.com/stories/2012/apr/12/regional-tribes-included-in-federal-settlement/). Recently, the US government had to pay tribes billions of dollars in compensation for these lost revenues. The Spokesman article reported on April 12, 2012 that the federal government is paying 41 tribes to settle "a series of lawsuits brought by American Indian tribes over mismanagement of tribal money and trust lands" [51]. This is a long history of mismanagement, corruption and embezzlement of revenues generated from tribal resources when tribes were under the trustee responsibility of the US government.

American tribes therefore have been unable to completely practice their model of sustainable practices where culture is the glue or core that control decisions. Despite being robbed of their resources and lands, American tribal members maintained their practices and taught future tribal members how to maintain their culture. These practices can be compared to the ecosystem management and adaptive management concepts that have been developed by western world scientists. For the western world these have been concepts that have been difficult to implement because the framework to practice these ideas are still evolving. The western scientific world is moving towards these paradigms but need to figure out how to link society in a credible manner to nature and its ecology. The nuts and bolts of a sustainability portfolio will be discussed next since it sets the stage for the holistic planning model that is used by indigenous communities even if they do not apply this term to their practices.

II. A LENS ON CULTURE AND TRADITIONS OF INDIGENOUS PEOPLES and LOCAL COMMUNITIES

4 Introduction to folklore and cultural survival

Many indigenous cultures survived and adapted to conquering onslaughts despite losing control and access to their lands and its customary resources. Sustaining their culture and ethics have been keys to this survival. Most indigenous communities, including American Indian tribes and Indigenous peoples (such as Dayak and Baduy in Indonesia), have legendary stories or folklore and a history of oration to recount these stories so they are not lost from the memory of future generations. Stories were used to entertain and pass on knowledge to families and a community – from children to adults - during many dark and cold nights (Virtanen and DuBois 2001). In the case of several communities in Indonesia, stories and other cultural traditions have also been used to conserve indigenous peoples' high conservation values that are important for meeting their basic needs as well as to maintain their cultural identity. The stories may also prevent the alienation process that is likely happening in tropical developing countries where land grabbing continues as part of the economic development in these countries. Henry Saragih, Chairperson of the Indonesian Peasant Union (SPI), reported 20 deaths of farmers from a total of 120 cases of agrarian conflicts in 2011.

Culture and folklore are not just the past that can be relegated to dusty corners of libraries. Virtanen and DuBois wrote

> ***" easy to think of folklore as a thing of the past, …Even worse, it becomes difficult to image that people today can profit by studying such dusty antiquities of yore. Folklore becomes equated with the preindustrial community of old, the village or farm life so unfamiliar to many in the highly urbanized, industrialized Finland of today...Folklore is more than simply curious relics of the past, however. It is a dynamic and ever-present dimension of human experience…."***

Virtanen and DuBois (2001) wrote how folklore is a "broad-based inquiry into the intricacies of

creativity and traditionality in everyday life." Finnish folklore is similar to the American Indian folklore in that it is enriched by its influences from the east and west. Indonesian folklore may be similar with other tropical countries', such as in Brazil and Ghana, since these stories recount how the intrusion of different cultures are integrated into social norms and how societies adapt or do not adapt to technological change. They provide a lens on

> "**how people establish and pass on important values, norms and knowledge even in the face of constant change".**

In his book 'Coyote Finishes the People', George (2011) recounts a Colville story of the arrival of new people to the North America continent and how the coyote has to "finish" or prepare the native people to deal with new people whose arrival will change their life forever. This story is similar to the Indonesian folklore in that it recounts how societies adapt following the intrusion of a different culture and how they rewrite their stories. Folklore is alive and includes the new drivers of social change.

The American Indians, Finns, and Indigenous Peoples in Indonesia have maintained their cultures in the face of hundreds of years of extreme pressure to become like their conquerors. Native Americans have over a 500 year history of surviving after being conquered by the western Europeans. While the Finns have over a 550 year dominance by Sweden and over 100 year dominance by the former Soviet Union. Indigenous peoples in Indonesia survived under colonial governments for more than 350 years. Until recently, indigenous peoples in Indonesia still have had limited control and access to natural resources although Indonesia has been an independent country for more than 60 years. Regardless of the circumstances that played out in each location, all these societies have strong cultural roots that allow them to maintain their values and

traditions.

Since the conquering countries make up the rules and determine or constrain the choices that indigenous people are able to make, this ability to survive and keep some semblance of one's culture is truly amazing. This is also the reason that today's global societies need to think about how culture helps societies to make ethical and environmental decisions, and to SURVIVE.

Folklore and stories are critical to any tool kit since they teach, entertain, and communicate with the listener regarding how to make ethical choices based on traditional cultures and knowledge. The American Indian coyote and Indonesian Dayak Tekena' stories are examples of the use of storytelling to provide a message.

The Native American coyote story is an example of the use of storytelling to provide a message (see Box 7). Many tribes of the Puget Sound have a salmon feast or first foods ceremony, where at the conclusion of the dinner they will return a carcass of salmon back to the ocean and they will also sing traditional songs and give oration during the ceremony.

Box 8: A COYOTE STORY ON HUMAN BEHAVIOR TOWARDS NATURE (from Hall 1991)

"…Coyote went as an invited guest to dinner at the home of Salmon. Salmon provided a fine feast, which turned out to consist of its own children. Before starting, Salmon said that they were not to cut across the bone, and at the end of the feast Salmon told the guests to return the salmon bones to the ocean. The guests did so, and the salmon children reconstituted themselves.

Coyote, of course, thought this was a wonderful trick, so he decided to duplicate it. He gave a

big feast and served up his own children; at the end of the meal he asked that the bones be distributed into the ocean. This was done, but the coyote children were not reconstituted! Coyote himself was tricked.

Many of the modern Coquilles do not remember their ancestors doing what Salmon does in this story: returning the salmon bones to the ocean. But a few of them do remember this ritual as part of some of the traditional salmon bakes on the beach. And many remembered that their parents cut and served salmon in such a way as not to separate its bones. These practices show a concern with the regeneration of nature and the realization that human behavior and human attitudes affect nature's regenerative capacity. Coyote, in this story, went through the ritual, but without the knowledge or the real capacity for regeneration, so Coyote had no success."

Tribes have traditional knowledge and culture that are maintained by ceremonies so they are contemporary and not just interesting tidbits about an individual's family history and lineage. Ceremonies reinforce culture for tribes and are told using stories using the coyote or raven as one of the main characters. Anthropomorphized animals are common in these stories and reflect the characteristics of that animals, e.g., cunning, strength, beauty, greed, etc. Western Europeans can recount their family history going back more than a thousand years but it consists more of who was related to whom and not a coherent body of traditional knowledge that facilitate decisions being made.

Tribes and indigenous communities in Indonesia have traditional knowledge and culture that are maintained by ceremonies so they are contemporary. The American tribal and indigenous communities in Indonesia believe that if you do ceremonies right for nature, e.g., making sure that fish will return and rice will grow healthy with lots of grains, nature will continue to supply cultural food resources (see Box 8**)**. There are few, if any, comparable ceremonies done by most Western European societies. In Germany, Switzerland and Austria it is common to find a religious cross placed in front of a field to protect the field and its grazing animals. Or

ceremonies are conducted in spring to rejoice in the return of the cycle of growth in nature after a winter period of dormancy – a common ceremony in the Scandinavian countries. These ceremonies did not depict gods and goddesses or spirits who need to be communicated with to ensure that natural resources would remain plentiful but more the changes in season and protection of livestock by saints.

Box 9: SUNDANESE KASEPUHAN ON THE HOLINESS OF RICE

Rice for Kasepuhan community is not only staple food. Rice is a holy plant; rice is a goddess, namely Dewi Sri.

For Kasepuhan people, preparing rice field should be done carefully, with respect to Mother Nature. They only plant rice once a year and usually leave the rice plants in the field to obtain a second cycle of grain production. They will not harvest this second grain crop. "This grains are for wildlife, such as birds, insects, rodents, etc" stated Uwa Ugis (personal communication to MM 2010). By providing this second grains for wildlife, the plantation season next year will not have pest and disease problems.

The Green Revolution, a worldwide program supported by UN agencies and multilateral agencies introduced to Indonesia and other developing countries during 1970s with the main purpose of increasing agricultural productivity. It failed to force Kasepuhan people to use a set of new varieties of rice. These new varieties of rice, which were resulted from intensive research processes, are much shorter (about 50 cm above ground) than the local variety of rice and have awkward taste due to the use of chemical fertilizer and pesticides. On top of that, since the new rice is shorter than local rice, the harvesting method is also different and not suitable with the ethic and beliefs as well as cultural tradition of the Kasepuhan people.

Since "without rice, Sundenese will die", Kasepuhan people conduct various ceremonies to make sure that rice plantation is not merely about growing rice, but also about having communication with the Goddess; thank mother nature for their goodness in supporting life.

Ngabut (1999) mentioned four functions of oral stories in the Kenyah Bakung tribe at Long Apan Baru, Bulungan district, East Kalimantan: 1) Entertainment, 2) Education, 3) Instrument or media to communicate with magical sources, and 4) Communication with non-tribal members. This oral literature is divided into prose and poetry. The prose has five different functions, such

as *tekena'* (folklore), *ngidau* (mantra), *bon-bon usa talon* (to harvest honey at a very high tree), *tuba la'it tuba sanit* (to harvest fish), and *kelap ta' penyakit kini* (to ward of evil spirits).

Dayak Tekena' stories about natural resources provide assurance that natural resources surrounding each Dayak community will provide enough basic needs for all the community members. In several Tekena', Ngabut (1999) mentioned about the close relationship between human (Dayak) and wildlife, such as hawks, wild chickens, and hornbills (Hornbills are the Dayak people's best friend).

For the American tribes and other indigenous communities like the Dayak, ceremonies make you stop and think about nature. It is are not just a process to use scientific knowledge to make decisions but thinking about the other cultural values that nature provides (see Box 9). Many Native Americans/tribes will talk about respecting the gifts of the Creator so that you will always have this resource. Tribes have a teaching that the deer or roots or berries will show themselves to you if you give them respect, this is a teaching in the Colville longhouse; and Rodney Cawston heard the Nooksack Tribal Chair say almost the exact teaching during one of their meetings at their tribal council.

Box 10: PLANTS IN CEREMONIES AND MEDICINES (Jonathan Tallman, Yakama Nation)

In addition to their uses in ceremonies, many plants have therapeutic value. For instance, when indigenous people of various tribes participate in ancient traditional sweat-lodge ceremonies, they often use different plants species such as sage, cedar or sweet-grasses. They apply these well-prepared dried plants to hot rocks within the sweat-lodge releasing a pleasing aroma which are known to have purifying and healing attributes enhancing the well being of the mind, body, and spirit. Furthermore, the steam generated from applying boiled water containing a tea made of either sage, cedar, juniper, bitter root (cowes) or wild rose bush onto fire heated rocks is

known to promote purification, physical healing, and detoxify impurities of the inner body, thereby improving immunity (Schiff 2009).

Indigenous people of North America utilized many plant species not only for their diet but for medicinal purposes. For example, California sagebrush (Artemisia californica) is commonly used by many tribes for antiseptic or cleansing reasons. Also, the leaves can be boiled in water and used as a tea for respiratory cold symptoms associated with coughing and it is known to ease menstrual cramps. Moreover, there are many remedies that indigenous people use in the Pacific Northwest; for instance, the Cowlitz Indians used red alder (Alnus rubra), containing salicyclic in the leaves and bark, for pain. Also, the Cowlitz used Douglas-fir (Pseudotsuga menziesii) and western red cedar (Thuja plicata) for cold remedies. The Cowlitz tribe use Oregon white oak (Quercus garryan) for tuberculosis (Moerman 2009). The Klamath tribe used mountain sage brush (Artemisia tridentata) as an antidiarrheal medicine (Moerman, 2009). The Washoe from Nevada used a sagewort (Artemisia douglasiana) and western juniperus (Juniperus occidentalis) as a pain killer (Moerman 2009). Many of these vegetative species are gathered from tribe's local environments. Certain species are dried and ground into powder. The powder or plants leaves are made into teas then consumed; this is a practice that is still commonly used today when preparing these remedies.

Native Americans continue to face challenges in practicing their culture because they are not compatible with the western world cultures and values. The western world legal translation of what is an acceptable cultural practice continues today. Native Americans have been convicted in courts of law for practicing their cultural traditions since it was contrary to western formulated laws that had set aside a particular time for a particular activity. The summary below shows the conflict that can occur. In this case, hunting season was over so the killing of a moose for a funeral potlatch broke the law (http://law2.umkc.edu/faculty/projects/ftrials/conlaw/frank.html; accessed Oct 8, 2012). This story from Alaska reflects how a practicing Native Alaskan faced prison time for practicing something that had occurred for hundreds of years (see Box 10). The story goes like this (Carlos FRANK, Appellant, v. STATE of Alaska, Appellee; Supreme Court of Alaska; 604 P.2d 1068; December 21, 1979):

Box 11: NATIVE ALASKAN IN PRISON FOR PRACTICING FUNERAL RITUAL

"In October of 1975, Delnor Charlie, a young man from Minto, died. Immediately preparations were made for a ritual that had been performed countless times in Minto and other Central Alaska Athabascan villages. It is called the funeral potlatch, a ceremony of several days' duration culminating in a feast, eaten after burial of the deceased, which is shared by members of the village and others who come from sometimes distant locations.

Delnor Charlie's burial, as is traditional, was delayed until friends and relatives living elsewhere could reach Minto and until the foods necessary for the potlatch could be prepared. With the food preparation under way, Carlos Frank and twenty-five to thirty other men from the village formed several hunting parties for the purpose of taking a moose. It was their belief that there was insufficient moose meat available for a proper potlatch. One cow moose was shot, which Frank assisted in transporting to Minto. Some 200 to 250 people attended the final feast.

A passerby took note of one of the hunting parties and reported it to state officials, who investigated and subsequently charged Frank with unlawful transportation of game illegally taken. The season for moose hunting was closed and in any event there was no open season for cow moose in 1975."

...Frank was thereupon convicted and sentenced to a forty-five day jail term with thirty days suspended, a $500 fine with $250 suspended, one year probation, and a suspension of his hunting license for one year."

The western European knowledge developed and is recorded in 'turbulence' and not in stories passed down through the generations. When knowledge is developed in turbulence, it tends to be either 'black' or 'white' since its context is usually a problem. This can be seen in the western European fairy tales that are dark and brooding stories with abandoned children, witches eating little girls or a wolf eating a cute little red caped girl. Or, the fairy tale tells a story of a poor farmer's son accomplishing some great feat, even if it is killing flies or ogres, and marrying the King's daughter and living happily for ever after. European type fairy tales are either black or white, e.g., right or wrong, and most are meant to scare the children into better behavior. There is not a very good message for children to hear since it suggests that the solutions are simple and not that there might be some elements of good and bad in every story. The Native American equivalents are in shades of grey and meant to encourage children toward better behavior.

In Washington State, non-Indians may still have difficulty understanding what culture means (see Box 11). Becoming an Indian does not mean to adopt some of their ceremonies without understanding the culture that is behind the practices. The typical approach has been to acknowledge the importance of Native American practices but not really knowing what this acceptance really implies. This is highlighted in the story below.

Box 12: WASHINGTON'S CENTENNIAL CELEBRATION 1989

In 1989, Washington State celebrated 100 years of statehood. This was also the year when twenty-six sovereign tribes in the State of Washington signed the Centennial Accord, which is an agreement that provides a framework for the governor and Washington's tribes to promote tribal self-sufficiency, work together to achieve mutual goals and to develop stronger tribal-state relationships.

During this year, the Colville Confederated Tribes opened up a museum and gift shop and with the grand opening, the tribe held a reception for the governor, state and federal legislators and other dignitaries. This event was in recognition of the Washington State Centennial Committee's support of the Museum and recognition of the Centennial Accord.

Many preparations were made, a local ball room was reserved, caterers were hired and flowers were ordered. Some of the tribal council felt that it would be important to serve traditional foods at the reception. The event was elegant with crisp white table linens, polished silver, crystal glasses and a traditional artist played flute music to create a pleasing and relaxing atmosphere. Young men and women were traditionally dressed and they greeted the guests by pinning a culturally significant corsage on everyone as they entered.

A very respected tribal elder agreed to provide traditional foods for the meal. This elder brought in the foods and arranged them along with the rest of the foods on the buffet tables. These traditional foods were presented in re-used cool whip and other plastic containers and enamel pots and dishes covered with tin foil. Many of the guests were very squeamish about taking or eating any of these foods. This elder took the governor by the arm and led him to the traditional foods and said: "You are going to try everything". She filled his plate with wild roots, berries, smoked salmon and dried deer meat. He ate everything and gave her compliments for the meal. To this elder, providing such a fine meal was an action of great respect. Native American people have reused and recycled resources way before these efforts were the popular prevailing practice. The event was regarded successful despite cultural differences or the misunderstandings and lack of common respect.

5 What does it mean to be a traditional ecological practitioner?

"…I know it's a widespread assumption in the West that, as countries modernize, they also westernize. This is an illusion. It's assumption that modernity is a product simply of competition, markets and technology. It is not; it is also shaped equally by history and culture."

~ Martin Jacques 2009~

Practicing traditional cultures or ecological knowledge does not take just one form. Indigenous communities have variable practices that keep them embedded in their cultures. It is important to realize that there is not one model that we should be adopting but that this approach should vary depending on the location of a community and how they have historically responded to their changing environment. These differences in practicing culture are well described for the Halimun Ecosystem area in Indonesia. Some of the communities have avoided any cultural practices that include western influences while others are very comfortable with integrating western technologies into their everyday life and decision processes. So there is not one model of what a traditional practitioner should behave like. We need to avoid lumping all traditional practitioners under one umbrella. The key point is that all of these variations of traditional practitioners characterize how communities have adapted to their history and lands potential to deliver ecosystem services. The communities living in the Halimun Ecosystem are excellent examples of the diversity of forms that culture can encompass.

5.1 Practicing culture: Story from Halimun Ecosystem Area, Indonesia

The Halimun ecosystem area is located in the upland region of the western part of the Island of

Java, Indonesia. Administratively, this area is spread in three districts of two different provinces. Forests in Halimun ecosystem area are known to contain the remaining mountain forest ecosystems in Java. The Halimun area consists of three main types of ecosystems, namely lowland rain forests, sub-montane forests, and montane forests. The flora found in these forests is highly diverse with records reporting 250 species of orchids, 12 species of bamboo, 13 species of rattan, and various types of timber trees.

The Halimun ecosystem area is also the last habitat for various wildlife species and rare endemic animals. In addition, this area has important hydrological function for three provinces: Banten, West Java, and Jakarta (the capital of Indonesia). Due to critical ecological services of the area, the government established the Halimun National Park. At the same time, certain parts of the Halimun ecosystem area are officially allocated as mining areas and agricultural estates. With the licenses issued by the central government, both state-owned and private companies manage mining and agricultural areas in this Park. The upland agricultural area has been managed since the colonial period.

The Halimun forests are homelands for two different customary communities, namely the Kasepuhan community and the Baduy community. They have inhabited this area for many generations. Studying oral history and legends, Kusnaka Adimihardja (1992) states that the history of Kasepuhan communities has some connections with the fall of the last Sundanese Hindu Kingdom, i.e., Padjadjaran Kingdom, around the year of 1579; the center of the Kingdom was in Pakuan Padjadjaran of Bogor Region of West Java. Referring to the oral history written by Tubagus Roesjan in 1954 on the attack of the Islamic Kingdom of Banten that caused the fall

of the Padjadjaran Kingdom in 1579, Adimihardja states that eight hundred members of the Padjadjaran Kingdom (mostly members of various hierarchies within Special Forces of the Kingdom) managed to escape (Adimihardja 1992). They hid in several remote areas in upland Banten and then separately formed several social groups that are collectively known as Kasepuhan today. Few others joined the Baduy community which is a social group whose territory is located in upland Banten.

The Baduy community has been known for their efforts to maintain traditional practices of natural resources for the purpose of "maintaining the purity of the earth" (Sastrawijaja and Adimihardja 1994). They still practice their traditions until today.

The Kasepuhan community, which consists of eleven sub-groups, implements a customary system of community-based forest management that is combined with a customary system of forest tenure. Many areas within the customary territories established by the Kasepuhan Community are communal lands. According to one sub-group of the Kasepuhan community, the areas that are considered communal are customary protected forests (Sundanese: *leuwung tutupan*), customary reserved forests (Sundanese: *leuwung titipan*), and managed forests (Sundanese: *leuwung garapan*). The first area, which is the protected forests (*leuwung tutupan*) is designated as a protected area in order to maintain the ecological, socio-cultural and spiritual functions of the forest. The second area (*leuwung titipan*) is reserved forest lands that can be used during certain times (through specific access mechanisms) to meet the basic needs which include food, medicines and housing materials. The third area is categorized as forests that can be utilized (*leuwung garapan*). This area covers certain plots of forest land that can be "opened"

by Kasepuhan Community members and converted into dry agricultural land or mixed gardens (Siscawati 2012).

Other sub-groups of the Kasepuhan Community divide customary lands into three forms of land use. The first is Old Growth Forest, known as *Leuweung Kolot/Leuweung Geledegan*. It is a dense forest; forest with lots of trees and various forms of wildlife. Some members of these communities categorized the Halimun National Park as Leuweung Kolot. The second one is 'production forests' (*Leuweung Sampalan/Leuweung Bukaan*). This land use category allows harvesting of timber, developing lands for agriculture, the collection of wood fuels, and animal grazing. This forest is usually located in the area that is close to a village. The third land use category is sacred forest (*Leuweung Titipan)*. Gunung Ciawitali and Gunung Girang Cibareno are Leuweung Titipan.…'Nobody is allowed to utilize any forest products from this forest without having permission from Customary Leader(s)' (Sesepuh Girang, personal communication to MS 2012).

The two customary communities have managed the forests of the Halimun ecosystem area based on a set of traditional knowledge to ensure the sustainability of both the forests and the livelihood of the communities. By applying customary-based forest management systems, these two customary communities have protected forest resources of the Halimun ecosystem area. However, since the 1970s, they have faced restrictions in applying their customary land use systems since the area was designated as a "state forest zone". In the case of the Kasepuhan community, which consists of nine different sub-groups, their customary territories cover almost the entire Halimun Ecosystem area. The establishment of the Halimun National Park in 1993

and the enlargement of this park in 2003 have created more restrictions for the Kasepuhan community (Siscawati 2012).

Besides these two customary communities, the Halimun ecosystem area is also home for other local communities. Some groups migrated into the area during the colonial era to work in the agricultural plantations that were managed by a colonial state company. Some others have arrived more recently to work in the mines located in the Park area. Over the years, these local communities have managed state lands as rice fields and complex agro-forest systems. The area where they live and cultivate is now part of the Halimun National Park. This threatens the continued cultural practices by these indigenous communities because of many new competing demands from these forests. These communities now need to adapt to whole new set of constraints that impede their uses of customary resources and implementing customary land-uses. This is a very similar story to what the Native Americans faced in North America upon the arrival of the European colonialists (see Battles to eliminate Native American traditions and culture).

All these stories provide insights into the framework that we introduce in the next part of the book and why particular factors are included for how to practice culture and traditions. Culture does not mean just saying that I am going to become more ‘cultured’. There are basic principles that are essential for any toolkit purporting to practice culture. Next we will explore how a diversity of communities interconnects with nature in multiple ways by how much spirituality or technology informs their traditional ecological practices and their how culture links to nature. This will be described using the Halimun Ecosystem area.

5.2 Framework characterizing the opportunities and constraints to practice culture and traditions

Our story from Indonesia and earlier Native American stories highlight

- How indigenous communities established complex landscape management plans that designated the intensity of land use that would be allowed in each part of the forest. Some areas of the forest were set aside as sacred areas, i.e., no land-use, due to cultural beliefs and any form of land-use would be prohibited;
- Nature has always been an important part of indigenous communities and nature defines a communities cultural beliefs, and
- Indigenous communities do not follow one model of landscape management but always include their local cultural beliefs to adapt to their environment (see Figure below). There is not a one-to-one correlation between the degree of traditional nature knowledge held by a community and whether the community as ranked as being sustainable.

Each community will have a different place on our figure (Figure below) and have a different balance between nature and society/technology and still be sustainable practitioners. There are multiple models of sustainability. The key point is that as a community move further away from nature, it will find it more difficult to be sustainable when consuming natural resources.

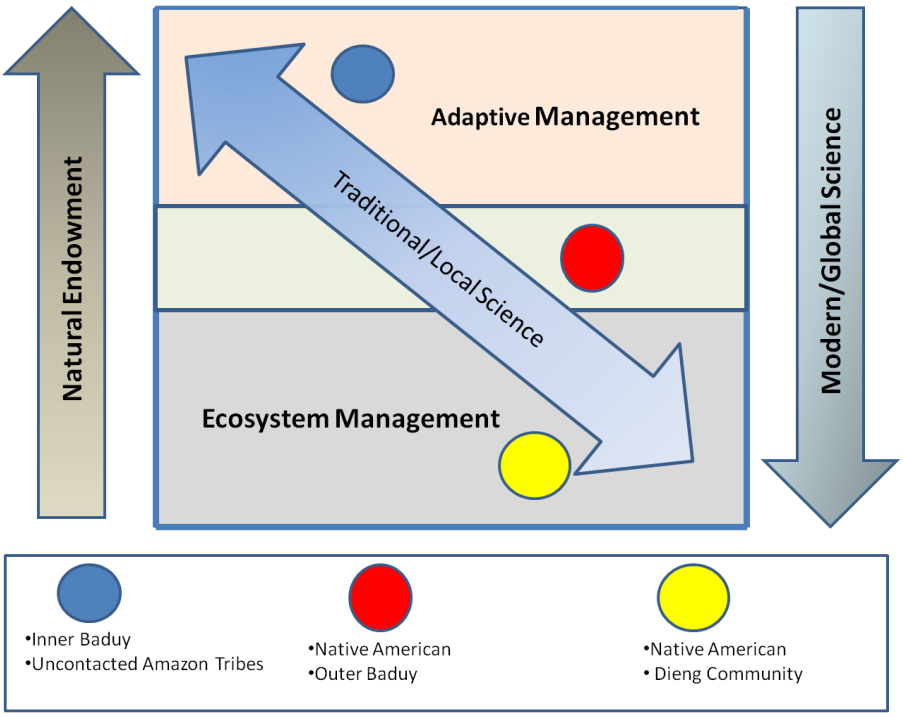


Figure 1. Descriptive model of how indigenous communities vary along several gradients for how much traditional and local science informs how they manage their natural environments.

In Figure 1, we introduce the configuration of three different societies that are influenced by natural endowment, traditional/local science, and modern/global science; this descriptive model evolved from our stories already written in Vogt et al. (2010) and what is included in this book. The Inner Baduy and uncontacted Amazon tribes live in the area where natural endowment is available to them without any significant disturbance from other interests/technology. These two societies implement their traditional knowledge that may include both their adaptation and mitigation strategies. Modern/global sciences have less influence or do not have any influence on these communities. Although most anthropologists believe that those two communities interact to some degree with other tribes.

Native American and Outer Baduy have more interaction with modern/global science and still practice their traditional/local science in their daily life. Natural endowment, particularly in the case of Native American, does not have significant pressure from other communities and from capitalistic natural resources management schemes. The wider area in the box (in green color) represents the 'dialogue' between traditional science, modern science, and natural endowment. However, certain Native American has been more influenced by modern science and has less engagement with traditional science. Certain Dayak people in the Island of Kalimantan that live close to the capital city of province and/or district are living under similar situations. For this Dayak community, rice is still important for their life but not necessary being planted in forested area by using swidden agricultural techniques. The Dieng community in Central Java is more advanced in using modern science, particularly to support their potatoes plantation (see Photo 8). Since the top soil is limited (approximately 30-50 cm deep) the Dieng Community apply chicken manures and chemical pesticides and fertilizers to increase potato production in contrast to those living in the Dieng Plateau. In fact, due to the massive use of chemical fertilizers and pesticides, the productivity of the Dieng Plateau land is decreasing. One hectare of land usually produces 5 - 8 tons of potatoes, currently the production has decreased to 3 tons per hectare (personal communication with potato farmers in Dieng 2009).

Photo 8. Potato plantation at Dieng Plateau, Central Java, Indonesia (Photo: Asep Suntana 2009)

The above categorizations of the Dieng Plateau are being fully implemented by customary societies (society with Blue Dot at Figure 1), but they have less impact on societal survival compared to the Red and Yellow Dots. Halimun National Park currently is facing a serious threat from local people who do not live with traditional ethic societies but have more modern and economical points of view on resource consumption. Illegal logging at Halimun is not done by people who live adjacent to the area, but by people who understand the value of the timber in local and national markets. Indigenous peoples who live in the buffer zone of Halimun only harvest timber to support their subsistence livelihood.

Natural endowment is supposedly abundant for these indigenous peoples. Dayak Punan (Malaysian Borneo) and Dayak Ahe (Indonesian Borneo) have been practicing conservation practices in their daily life. Preservation, utilization, and protection are part of the life of Dayak People. They have cultural traditions on how to cultivate and to grow rice to support their life.

In fact, rice is the soul of Dayak (Dayak Ahe, Western part of Indonesian Borneo, personal communication to MS, 2012):

> **"*Without rice, Dayak will be confused and drunk. If Dayak is drunk, anything can happen uncontrollably"***

The elder of Dayak Ahe has been furious for years after he and his people learned that growing rice is going to become more difficult due to increasing number of plant diseases and pests. The Dayak people are also less able to acquire clean water for both their daily life needs and/or to water their crops. The quality of the water and the sedimentation of river reaches are preventing Dayak Ahe to implement their traditional practices to cultivate rice and other plant for their basic needs. The landscape changes occur at such a large scale that they can no longer control its impacts on their crops. The river is polluted by chemicals that are being applied far away from the village. The pollution is occurring in the upper part of watershed but is changing the quality of water in the lower part where the Dayak Ahe live. Therefore, the quality of life for the Dayaks has changed.

Photo 9. Palm oil and rice being grown in the transmigration area in West Kalimantan, Indonesia. The areas are managed by migrants from Java island (photo: Asep Suntana 2012)

III. PORTFOLIO FOR SUSTAINABILITY: NATIVE AMERICAN BEHAVIOR BLENDED WITH WESTERN SCIENCE

“Humankind has not woven the web of life.

We are but one thread within it.
Whatever we do to the web, we do to ourselves.
All things are bound together.
All things connect.”

~ Chief Seattle (1854) ~

6 The nuts and bolts of a sustainability portfolio

Despite the western world’s sophisticated and refined scientific and economic models, they have not dealt with social and environmental externalities that make people vulnerable to disturbances and climate change. To formally include these externalities in a sustainability model, several approaches commonly found integrated in western world decision models need to change. For the western world,

- decisions are made reactively to a problem and not proactively to develop a strategy to deal with a potential problem;
- decision-makers are typically formulated by special interest groups and developing consensus is not the norm;
- decisions are made to address the immediate problem and not other issues connected to the problem that make people vulnerable to future situations, and
- problem identification is egocentric and not at the community level, e.g., what is my problem and how will I be impacted by it.

Western world societies have been fixated on resolving today’s problem but without understanding that, as frequently mentioned by Native Americans, **‘the mountain will be here after we are gone’**. So decisions need to be long-term but recognize that identifying and planning policy for scientifically identified final end-points is futile. Too many unpredictable events can impair the ability to achieve these final end-points. So decision making to be sustainable needs to be adaptive and change its goals as new information emerges. Since most of our environmental and social problems exist for decades, a new approach to practice essential

leadership is needed (Berry and Gordon 1993). We need to recognize that the 'problem' may still be around even after we are no longer dealing with it. This does not mean that you do not make decisions but you have to be more creative in integrating social and environmental factors and inequalities into your decision process.

The western European approach to deal with complex environmental and social problems is typically a **Disciplinary-based approach or a bandage to cover up the problem.** Today, most Americans are too 'temporally' and 'spatially' isolated from their environments and the products they consume. So they are less able to know when a solution to a tricky problem is sustainable, or just a 'bandage'. This situation is commonly found in forests today where the focus is on conservation and the continued delivery of ecosystem services from them but not on the people who are dependent upon these same forests for their survival (Vogt et al. 2006). These problems become tricky since forests are expected to provide services where different parts of society compete and value different resources or nature. Since consumers are not connected to forests and have no historical memory that would influence their decision, it makes it even more difficult to engage society informing decisions and options that are viable.

6.1 Western science of Ecosystem and Adaptive Management

Dr. Peter Venkman: Back off, man. I'm a scientist.

~ Ghostbusters (1984) movie about three unemployed parapsychology professors who run a business exterminating ghosts. www.imdb.com/title/tt0087332/quotes ~

Despite the hundreds of years of domination by western Europeans, the Native Americans have survived and continuously adapted to the new challenges they face. This does not mean that Native Americans have solved all their problems that erupted with the arrival of the western European colonialists. Far from it! They face high poverty and continuing battles to improve and protect their livelihoods, cultures and traditions. But they have adapted and still practice a respectful and unique form of system-based approach to nature (see 8.0). Many attempts have been made to make Native Americans use tools developed by the western world to interconnect with nature, and to move them away from their traditions. They have avoided following this pathway even though it would have made their life easier. It would have required them to become civilized in the mode of the western world. They continue to search for solutions that are culturally acceptable to them for many of the regional problems faced by tribes and non-tribal communities (see Traditions are not just writings found in library archives: Native Americans driving and controlling resources today).

An important question to answer is 'How were Native Americans able to survive all the threats to their culture and way of life and to emerge as important contributors to the current regional economies while maintaining their diverse cultures?' This is the story of our book. It provides the clues for building our portfolio of sustainable practices and behavior, i.e., **humanizing sustainability practices**. Understanding this answer gives clues to how a people can make sustainable choices while adapting to a changing environment. This also recognizes that people cannot be removed from nature and nature is not better off if there were no people living in these environments.

Facing tremendous pressures to conform to western world ideals and cultural norms, Native Americans could have responded with a comment similar to Dr. Peter Venkman in the Ghostbusters movie. They could have told the western world to back off and leave us alone. A Native American would say 'Back off, man. I'm an American Indian'. However, a smart survival tactic does not result from telling someone to leave you alone. They usually do not leave you alone and will make a special effort to force you to change. American Indians have survived because of having an inner core of strength and stability that their culture and community provide them. Since Native Americans think about the group or village and are not focusing on the individual, they are better at making ecosystem-based decisions and responding to disturbances that cycle through human landscapes.

A key element of humanizing sustainable practices is for people to have a culture and core value that is local or regionally placed and held by a community with a long history. A tribal community will less likely make important decisions based on what is the current global fad. This contrasts the western world view that appears to be driven by fads or public polls. The western world values the individual. The individual is more susceptible to making decisions based on current fads, having what your neighbor has or responding to new media communications that are similar to your values. Only in the western world can we connect the length of a woman's skirt to the stock market, e.g., when the economy is doing poorly, a woman's skirt becomes longer.

> ***"Dr. John Casti, Cofounder of the X-Center in Vienna and author of*** **Mood Matters: From Rising Skirt Lengths to the Collapse of World Powers** ***puts it this way,***

> ***observing "that the rise and fall of great civilizations are biased by the attitudes a society holds to the future."***
>
> ***As a leading proponent of the science of socionomics, Casti observes that when social mood is positive and optimistic, hemlines tend to be shorter. And, that the reverse is true when things are dour or the social mood is uncertain because they reflect the mass psychology."*** (//moneymorning.com/2012/08/20/what-skirt-lengths-tell-you-about-stock-market/)

This does not mean that during bad economic times, women should not go out and buy longer length skirts to wear. Wearing a long skirt is not going to reverse the economy or keep a bad economic situation from happening. These two bits of fact are correlations but are not causally connected to one another. Culture do not cause fads to emerge since culture is dictated by hundreds of years of traditions.

A people's culture or folklore is the thread that connects current societies to their past history and values, and sustains them when they have been conquered. A people's culture is the glue that keeps them bonded and working towards common goals, and practices. Of course, the first thing a conquering people want to obliterate is a people's culture because it is easier to control them and therefore their resources. A conquering group will want to eliminate anything that binds a group of people together. It was a common practice of rulers of conquering countries to take children of the conquered countries to become members of their family or brought up by other nobility to retrain and educate them. It was an effective indoctrination approach and made it less likely that these children would attack the conquerors in the future.

Native Americans, and other indigenous communities, have the behavior and thinking that bound their knowledge base and make them ideal Global Sustainability Managers. The authors of this

book feel that the culture and social drivers of Native Americans is an ideal model to adopt since they have already had to live within their environments – they have learned many lessons that societies more closely linked to their environments have accumulated as traditional knowledge and where the knowledge is intergenerational. The cultural traditions and management practices used to maintain cultural resources and traditional foods are described in Box 12.

Box 13: THOUSAND YEAR HISTORY OF TRADITIONAL ECOLOGICAL KNOWLEDGE AND CULTURE (Jonathan Tallman, Yakama Nation)

For thousands of years, indigenous people of North America utilized several landscapes and developed a fundamental way of life as agriculturists, hunters, and gatherers by burning many landscapes. Many of the tribes in the eastern US planted an abundance of crops such as corn, squash, gourds, beans and many other plant species (Vale 2002). Therefore, indigenous people made use of the many different ecosystems. Native Americans established many harvest and subsistence systems to meet their requirements of nourishment and support their welfare. One important way that indigenous people enhanced their well-being was through their diet and nutrition. Native Americans are considered to be the first ethnobotanists of the Americas.

The historical use of fire by Native Americans is apparent within the prairie grasslands, montane meadows, oak woodlands, and conifer forests (Anderson 2009). Their approach to using fire was to achieve specific objectives, and to improve desired vegetative communities. For example, Native Americans used fire to enhance edible food sources such as camas. The indigenous tribal people applied fire onto prairies and meadows to encourage future plant productivity for wildlife, especially for foraging and browsing animals such as deer and buffalo. Furthermore, archaeologists suggest indigenous peoples adapted to ecosystems of North America mainly by practicing hunting and gathering. Hunters utilized sharp arrow heads for spears, bows, and arrows as tools for hunting. Gatherers developed methods to gather and preserve foods from North America for close to ten thousand years.

Over the course of nearly ten thousand years, indigenous people of North America established a relationship with the natural resources: water, vegetation, prairies and forests. Furthermore, the Indians made extensive use of fire to shape the vegetation and the ecology of forests and prairies. They employed fire to enhance the growth of foods such as camas or to attract deer and elk to the rejuvenated vegetation following a burn. They figured how to utilize fire through teachings of knowledge past down from generation to generation to shape and enhance vegetative processes within many ecosystems. This sometimes is referred to as Traditional ecological knowledge (TEK) or "the knowledge base acquired by indigenous and local peoples over hundreds of years through direct experience and contact with the environment," and developed for thousands of years (Anderson 2009).

Since Western Europe stories have dominated the decision process for the last 500 years in many parts of the world and they did not write too many sustainability stories during this time, it is worthy to explore the stories of people have been successful. Contemporary forest management practiced by tribes is frequently acknowledged to be better than what is implemented by public agencies overseeing public lands (Gordon et al. 2005-2006). Tribes have to live with the resulting consequences of any decisions that they make while the public management agencies do not. If a bad decision was made by a public agency and trees die, there usually is not a public outcry to fire or eliminate the agency. However, if this happened on tribal lands, the land manager would hear about it that day and would have to account for the decision they made.

The differences between management decisions practiced by indigenous communities and colonialists are still detected today. Lu et al. (2010) reported that in northern Ecuadorian Amazon that

> ***"five indigenous populations studied affected the forest to a much lesser degree than colonists. From 1986 to 2002, indigenous areas exhibited substantially lower rates of deforestation and there was a higher proportion of the landscape covered by primary forest. Furthermore, several measures indicated colonist lands exhibited greater forest fragmentation. The conservation implications of these findings speak to the value of indigenous lands in maintaining forest cover..."***

The latter study supports our contention that a Culturally Based approach warrants a fresh look. Our model is based on the cultural norms of Native Americans to train resource professionals globally to behave in a sustainable manager by becoming holistic managers.

We think there is a very receptive audience in the next generation of western science trained and

future decision-makers to include traditional knowledge and culture in their decision process. The relevance of folklore for today's industrialized world is evidenced by two of the authors (KV, DV) who teach an undergraduate class at the University of Washington. The students, many are business and economic majors, are enthralled by global myths and traditional knowledge and taboos used by societies to manage their resources. They do not see these as musty and dusty stories relegated to storage units.

6.2 Western world ecosystem and adaptive management

If practicing holistic management is the goal, we need to accept the fact that nature is not virgin. In contrast to Native Americans, western world peoples believe that nature is untouched by the hand of man, and nature without a person present is more sustainable. Accepting people as part of nature is not a betrayal of ones conservation values. Yes, we have stories where humans altered ecosystems until they became less resilient and societies subsequently collapsed (Diamond 2005). But, most examples are of locally-based or indigenous societies who balance their collection of natural resources so that the environment and society are resilient. If they did not maintain resilient environments, they as a community would not be alive today. Indigenous community survival is dependent upon how well they treat nature.

The western world, until quite recently, saw nature as separate from society and where a society's land-use footprint will always be negative towards nature. This view is probably reflects the fact that these colonialists left lands that they had over-exploited and where scarcity was a reality. It is paradoxical that they could never grasp that their actions in lands they conquered was a repeat cycle of what originally caused resources to become scarce in Europe to

begin with.

Today, the western world recognized that ecosystems and societies are inextricably connected to one another. But this insight did not arise in western world mind in any systematic way until the early 1990s. That is when ecosystem management and adaptive management were conceptually developed and accepted as the needed paradigms for land management by the western world decision-makers.

John Gordon's definition of these terms are very descriptive and articulates well what these terms mean and also how they differ from one another – a fact that is mostly forgotten by decision-makers and scientists to their detriment (see Box 13). Gordon's definitions recognize that resource scarcity is driven by several factors: a scarcity of land and a scarcity of knowledge. When we ignore these scarcity differences, we tend to adopt tools that are inappropriate for a situation.

Box 14. TERMS DESCRIBING SCARCITY OF LAND AND SCARCITY OF SCIENTIFIC INFORMATION (Gordon 1993)

Ecosystem management *is attempting to respond to a scarcity of land. This land scarcity means that the exclusive uses of any given land area for one purpose is no longer possible because the production capacities of ecosystems are finite.*

Adaptive management*, managers are responding to scarcity of scientific information and knowledge.*

If you recognize that ecosystem management deals with scarcity of resources from one piece of land, you would have to accept the fact that you need to address competitive options from the

same land. You might use economic tools to address the competitive choices but, after reading this book, we hope you will use tools that are not just based on an assessment of costs and benefits. Adaptive management is really based on a lack of knowledge so you design your tools to identify factors that will reduce your risk that you are making bad choices. Adaptive management is more difficult to evaluate using only economic tools since the knowledge to define thresholds and end-points is essential information for an economic assessment. This knowledge is mostly lacking for our natural environments. If scarcity of knowledge is real, it will be difficult if not impossible to develop consensus on which tools to use and to accept the results of any assessment (Vogt et al. 2010). This is where traditional knowledge has an important role to play since it helps society to adapt to change under conditions of knowledge scarcity.

Western European models of resource consumption and economic development do not work in an environment where resources are scarce and where competition for resources is keen. The western world model of resource consumption, despite all the scientific discussions and writings, continues to be driven by economic decisions. These models include environmental and societal factors that can be readily applied in existing models. Our lack of knowledge on the environment and the occurrence of unpredictable events suggests that adaptive and not ecosystem management should be the norm in how we make decisions. Today, the norm is to use ecosystem management to address environmental problems that society faces.

The need to make difficult decisions with uncertain knowledge is common. This is especially problematic when non-Indians want to negotiate with Native Americans to access those

resources found on reservation lands. Today, non-Indians have to negotiate with Native American tribes since societal demand for scarce resource supplies continues to increase. These scarce resources are found abundantly on many reservation lands (see 10.1.3). Water is an especially scarce resource that societies cannot survive without and where current patterns of climate change is altering who owns it (see 2.1.3).

Despite all the losses of resources and lands that the Colville Confederated Tribes faced with the building of the Grand Coulee Dam (see 3.2.4), new demands are arising to access water supplies found on tribal lands today. The increasing demand and competition for water is mostly occurring from the many groups who live downstream from reservations (see 2.1). When ecosystem management tools are used to decide how to equitably distribute water, it should address scarcity of water and how much water can be distributed without jeopardizing future water supplies in this region. However, in 2008 the Seattle Times reported that Lake Roosevelt drawdown was approved by the state of Washington and what was agreed to.

> ***"As part of that bill, the state proposed drawing down Lake Roosevelt, behind… of that water will remain in the river for fish, and one-third will be used for new municipal and industrial water rights along the Columbia. The rest will provide surface irrigation for 10,000 acres of crops east of Moses Lake, where farmers have been relying on well water from the declining Odessa Aquifer, and to provide a more stable water supply for irrigators whose water rights are interrupted in drought years…."This 20-year war, where people's outlook was, 'I am going to win and the other side will lose,' everybody loses," Manning said. "That's what water has been about, at least in Washington, certainly in Eastern Washington."…The state reached agreement with the Confederated Tribes of the Colville Reservation and the Spokane Tribe of Indians, whose reservations border the lake, on payment for tribal costs of the drawdown. …"***

This agreement made for Lake Roosevelt appears to be an equitable distribution of water supplies derived from tribal lands and the tribes were compensated for their loss. As a rationale

scientist, one does have to question how much knowledge was used in the decision process. It is not clear whether the allocation of a third of the water for fish, a third for new municipal and industrial water rights along the Columbia and the remaining third for irrigation sufficiently evaluated risks to maintain ecosystem services from the Columbia River. This appears to be an agreement that allocated equal portions of water for the competing demands. What if there had been another powerful stakeholder group, would the water have been distributed by fourths? If we use Gordon's definitions of terms, the Lake Roosevelt agreement was treated as an ecosystem management problem, i.e., how to allocate a scarce resource. In fact it appears to be an adaptive management problem where a lack of knowledge resulted in a simple process of equally dividing a scarce resource that has strong economic ramifications. The tribe protected its interests, determined that its water rights were not impacted and that the river could sustain planned drawdowns to meet tribal ecosystem concerns.

This decision should have used the holistic management approach implemented by tribes. The Colville Confederated Tribe pursued Holistic Management because they saw it as a way to factor in cultural factors in every aspect of tribal life. The Holistic Goal of the Confederates Tribes of the Colville is summarized next.

6.3 Essential Sustainability: Building an Native American behavior and thinking toolkit

We think that the Native American model of keeping one foot in the past while making decisions that factors in '7th generations into the future' can begin the trajectory for industrialized societies to begin the journey towards ecosystem-based decision-making and essential sustainability. The

key to the Native American model is their continued connection to nature and where decisions on resource uses always includes, not excludes, nature. Native Americans also set aside certain culturally-based factors that are not part of the tradable or negotiable items. This decreases the potential for a special interest group to control the process and negotiate away something with greater value to the group.

We are not suggesting that using traditional knowledge is the only approach to make sustainable decisions. We are saying that the **process** that Native Americans follow is important to emulate, especially the process they follow to exclude some resources or land from being included in the negotiation process. Native Americans use traditional systems based knowledge in their decision process but also are superb adaptive managers. They are very facile in developing totally new business enterprises and readily adopt technology when it clearly does not jeopardize their cultural resources. They do not glue themselves to traditional ideas or approaches. They are open to new ideas as long as valuable cultural resources are not included in the negotiation process and potentially lost from the community. We contend that traditional ecological and cultural knowledge held by many indigenous communities provide an approach to humanize society's resource decisions. It also allows societies to make locally-based decisions. **Traditional knowledge does not provide specific solutions for a specific problem but an approach for humans to follow that specifically includes nature and humanizes the decision process.**

There are many models that can help us to change how we make decisions. Ours is a simple model: **Become an American Indian**! Or at least move towards thinking and behaving like an

American Indian. This will make western world trained decision makers superb adaptive **managers**. Native Americans and other indigenous groups have less difficulty dealing with the sustainability concept because of their traditional knowledge. These are the people we should look to when figuring out whether we are on the right track for making sustainable choices. Becoming an Indian does not mean you should look cosmetically like an Indian but it means you should adopt aspects of their political, cultural, spiritual or religious and economic characteristics.

Most indigenous communities in general have very different sustainability practices compared to western Europeans. Until quite recently, most indigenous people's concepts have to be translated through western concepts in order to be "understood" by western societies (Smith 1999). Much is lost when concepts have to be translated using another language. The value of our book is that we are not trying to translate indigenous concepts only using the western world language. We show where Native American and western world practices need to connect and become compatible. No Native American would suggest the western world practices and technologies should be thrown out and not used. They do say that the western world practices are not in balance with the 'human' side of society (see 1.0). This needs to change.

Indigenous communities have developed a history of cooperation in resource management with an emphasis on multi-tiered environmental governance. These approaches need to be understood and not altered or repackaged using someone else's language. It is their core values and traditions that are the basis of these different models espoused by indigenous communities. It has worked exceptionally well in conservation which has been problematic for western scientists.

This has been less of a problem for native communities where

> ***"The close connection between culture, nature, and survival that led to native conservation practices and designation of sacred places has been hypothesized as enabling many indigenous cultures to support high levels of natural biodiversity in their homelands for many generations" (Perla 2008).***

Indigenous communities have evolved and refined their practices over several hundred years. In general indigenous communities share several similar characteristics:

- **Rely on their mythologies and traditional knowledge to maintain and promote a long-term view**
- **View everything as interconnected so there is a need to consider everything in coupled social and natural ecosystems.**
- **Look at the Earth as alive, whole and having a "soul", with no man-made boundaries. Tribes view nature as a whole and where everything has a "soul" from a person to a rock. With this approach, being a vegetarian is a funny concept since each plant has a "soul".**

These attributes of indigenous communities equates to them being adept ecosystem and adaptive managers before these concepts became popularized by the western world to manage human landscapes. It is amazing how similar the Native American attributes are to the core principles of ecosystem management developed by the western world in the early 1990s (Gordon 1993, Vogt et al. 2012):

- **Focus on the sustainability of ecosystems, not on the output of products;**
- **Adopt a holistic understanding of the way all the parts are linked together in an ecosystem and the feedbacks among those linkages;**
- **Incorporate a long-term perspective and examine issues at a scale relevant to the functioning of the ecosystem; and**
- **Recognize that human values shape ecosystem structure and function in myriad ways that can constrain, promote, or reduce sustainability.**

These similarities suggest is that the western world does not need to develop new paradigms for

sustainable practices. We can learn from Native American practices that have been around for several thousand years. Their practices already integrate all four principles of ecosystem management mentioned above. Tribes and indigenous communities were the Ultimate Ecosystem and Adaptive Managers before it became the 'fad' to espouse these practices. The scientific approach to ecosystem management continues to be to manage values that we want out of our ecosystems. Most Native American tribes have stories or similar folklore that can provide considerable insights into their decision process when compared to formal western science stories, e.g. a peer reviewed publication.

Even though the western world scientists did develop indicators and rules for ecosystem management, they have not connected the four principles simultaneously to address a problem. The western scientific approach is excellent at developing new paradigms or principles but frequently this occurs at the expense of including all necessary components needed for a system to be adaptive. A new name or paradigm doesn't mean that we are practicing better management if we do not include all principle components essential for retaining the functions or structures of an ecosystem. A good analogy for the first principle of ecosystem management is the focus on a product output instead of sustainability of the ecosystem. If a cook makes a chicken dish but 'this dish does not include the main ingredient – a chicken – but has snake meat or tofu substitutes', the product may look and taste like chicken even though it is not a chicken dish even if you call it by that name.

History or traditional knowledge helps us know what we need to include when practicing traditional ecological management in nature. Traditional practitioners would never substitute

snake meat into a dish and then tell you that you are eating chicken. They would not focus on the output of products but how a decision would change the connections in an ecosystem. The same cannot be said for a person who is part of a stakeholder group that would benefit economically if they managed to get you to eat the false chicken dish. They may have just gotten a really good deal on several tons of snake meat after a snake round up even though killing so many snakes may be detrimental to the health of the ecosystem. It is in their best interests to have you focus on only the product and not on whether the ecosystem becomes less resilient.

So how can western world scientists, decision-makers and natural resource managers become more American Indian?? First, there has to be recognition that Native Americans do have something to contribute to resource management. There also has to be recognition that the process used by Native Americans to make decisions differs from the western world scientific approach because of their nature based cultural traditions. It will be challenging for a western scientist to understand this approach since it is not based on large data-set of facts and models.

There is still considerable lack of understanding of tribal practices and their culture. A western world lens is used on tribes. The story below demonstrates the lack of understanding of local tribal knowledge and its relevance for managing resource landscapes (Box 14).

Box 14: WSU/WASHINGTON STATE FOREST OWNERS FIELD DAY by Rodney (Colville Confederated Tribes)

In Washington State private land owners control 5.8 million acres of non-industrial forest land. Several times throughout the year, Washington State University Extension and several Washington State Agencies, including the Department of Natural Resources hosts a Forest Owners Field Day for private forest land owners. These Field Days provide educational workshops with information that private forest land owners can use to manage their own forests. Courses include classes and

activities in forest health, wildlife habitat, soils, fire protection and special forest products.

While I was employed at DNR, I was asked to conduct presentations at the Forest Owners Field Day in tribal-state relations, tribal government and cultural resources. During these presentations I was asked questions from everything about Casino's to tribal councils, and tribal enrollment. Many landowners never considered that the land they now own was once inhabited by Native Americans. While most of the participants held tribal affairs and cultural resources in high regard, there were some who did not.

Some private land owners didn't like the fact that tribal representatives could make comments on the Forest Practices Review System utilized by Washington State to process permit applications on private and state forest lands. Many didn't like the tribe's involvement with the Washington's Forest and Fish Law that provides opportunity for tribes to make comments to protect habitat on miles of streams and aquatic lands and public and private forest lands. There were private forest landowners who wanted to maximize their revenues and did not like leaving barriers along stream sides or riparian areas.

These workshops were helpful to bring a greater understanding of Native American use of the landscape and afterwards many private land owners invited tribal gathering on their lands. But it was also obvious that a continuing generation of conflict still exists of people who don't realize that the very landscapes that they own with high biodiversity is the result of the practices of the people who have lived there before for thousands of years.

Some differences between Native Americans and western world towards resources and their decision-processes are summarized in Table 1. A western educated person has to acknowledge that these differences exist if there is interest to change one's behavior. These differences form the basis of our Native American portfolio that we introduce in this book (see 6.0; Indian Spirituality by Wendell George for comparison of the spiritual differences between American Indians and the western world).

The reader has to recognize that there is no one Native American attribute that they have to mimic if they want to become an Indian. Native Americans have a diversity of behavioral attributes that varies depending on where a tribe lives. But, the reader also has to recognize that there are core cultural roots, values and behavior that glue tribes together even if a specific

cultural attribute varies among the tribes. Some of the comparisons we make will not be found within a particular tribe or a tribal member. Our portfolio does provide a road map of practices for anyone that wants to humanize natural resource decisions. It allows an individual to think about how to change their behavior to integrate culture into their thinking, behavior and decision-process. It will help a person to connect to nature without becoming a false parody of the real thing or only making cosmetic changes (see 9.2).

Another caveat must be mentioned in our book. The western world perspective is rapidly evolving and beginning to move towards the Native American approach. The western world has not reached this goal of becoming and behaving like an Indian. So we apologize to those who have successfully made this transition by having to read our stories. Our comparisons in Table 1 are provided for heuristic purposes to highlight and contrast the fundamentally different approaches that have existed for hundreds of years between a Native American and a western world person. The table below summarizes our thoughts and explains why we include some of the elements that we did in our portfolio.

Table 2. Summary of Native American and western world people's perspective on nature, problem solving tools and decision processes.

TOPIC	Native American perspective	Western world perspective
View of Nature	Nature has no boundaries or borders	Nature has borders and needs to be separated from humans by artificial structures.
	Nature doesn't have to be manipulated all the time. Nature can appear vacant.	Nature has to be managed. Nature that is not managed is a Park where people can view and photograph its natural beauty but not touch nature.

	Humans are part of nature – there is unity between nature and humans; nature is where humans and spirits interact. There is an emphasis on living in balance and harmony with nature and with the spirit wo.	Humans are masters of nature and dominate over nature so there is no need to balance nature with the spirit world.
	Nature is everywhere and interconnected	Nature is found in a museum, zoo or park and isolated from humans. Nature is not interconnected formally to humans.
	Everything in nature has a spirit and should be respected. Nez Perce call spirits *wayakin* while Interior salish would say 'sumix'. The sacredness and spiritual significance of nature and the earth is important; particularly objects in nature such as mountains, rivers, rocks, stars, and plants as well as many animals, such as eagles, hawks, crow, owls, and deer.	Nature follows scientific principles and will behave according to science knowledge and principles. Particular objectives in nature are not important as much as species facing extinction or are endangered due to human land-use activities.
Nature managers	Individuals-to-community practice adaptive ecosystem management. Bottom up ecosystem managers.	Land managers outside of the community. Top down ecosystem managers. Adaptive management is not common and mostly respond to problems as they occur.
Thinking	Web based and systems view of nature and resources.	Linear thinkers and separate nature into categories that are individually managed.
Source of knowledge	Traditional ecological knowledge which includes cultural/spiritual values. Elders and shamans are important sources of knowledge.	Academic knowledge developed by experts and does not include cultural/spiritual values. No elders or shamans contribute knowledge to resource issues at the local level.
Science	Participatory, experiential learning, inter-	Listening and regurgitating back scientifically

learning process	generational stories of nature.	accepted facts. Less experiential learning. Tools important to assess resources: Environmental Impact Assessments, certification, GIS, simulations, statistics, scientific research.
Resource values	Social, cultural, spiritual values for resources. Resources do not need to be useful to be valued.	Resources are commodities, economic values important. Resources have to be useful for humans.
Level of decision making	Local and community level decision making. No special interest groups controlling decisions. Society, communal harmony, kinship and cooperation are emphasized.	Decision-making mostly external to local and community level. Special interest groups common and foreigners making decisions. Little emphasis on communal harmony and cooperation.
Belief	There exists a Great Power or Great Mystery and various other gods which are nature based.	Religions have great power and symbols but these are not nature based.
Ceremonies and rituals	There is an emphasis on self-discipline and performing various tests of physical ordeals. Purification practices, fasting and vision-seeking is common. Rituals, stories, dancing, art, chants, and music (mainly singing & drumming) maintain culture.	Ceremonies are less relevant except as part of each person's religious beliefs. Vision seeking is not common since science or superstitions explain everything. Culture is expressed in festivals where dress in traditional costumes that are part of one's family roots, but are geographically foreign to where the festival takes place.

7 Portfolio Element #1. How to connect society with nature

All things share the same breath—the animal, the tree, the man, and the air shares its spirit with all the life it supports.

The earth and myself are of one mind

All things are connected. Whatever befalls the earth befalls the children of the earth.

We are part of the earth, and it is part of us.

~ Chief Seattle (Seathl) (1790-1866) ~

7.1 Divergent models of 'wild' nature and how different societies connect to it

The western Europeans and Native Americans have a fundamentally different view of nature and how society connects to it. These differences are important to know since it dictates the approaches taken by each group to make sustainable choices related to nature.

The review of Anderson's book 'Tending the Wild: Native American Knowledge and the Management of California's Natural Resources' by Sally Fallon Morell (2012) summarizes well the contrasting views of nature held by Native Americans and western European settlers when first arriving in present day California. A short extract follows:

> *"The Europeans assumed that they had discovered an untouched wilderness that just happened to resemble a garden, populated by "primitive" Indian tribes who profited from Nature's bounty simply by hunting and gathering. But in fact, California was not so much a wilderness as a true garden, a garden of beauty and abundance because it had*

> *been tended for thousands of years by wise guardians. For untold generations, the California Indians had shaped the landscape by pruning, coppicing, cultivating, transplanting, weeding, selecting cultivars—and above all by controlled burning.*
>
> *Controlled burning served as the main tool for creating California's garden-like landscape. ... Burning could be used to corral wildlife—masses of grasshoppers moving ahead of controlled burns, for example, provided nutritious and easily gathered morsels for the Indians. Above all, frequent small fires prevented the buildup of brush that could fuel the occasional catastrophic fire. Whereas controlled burning helped to preserve trees and encouraged them to grow, uncontrolled fire could wipe out forests and therefore the food supply….*
>
> *The Indians saw their role as guardians of Nature, agents for improving Nature's appearance and increasing her abundance; the plants and animals were their relatives, to be supported and cared for, just like human relatives. By contrast, the Europeans viewed Nature as something outside—unpredictable and often dangerous; Nature was there for exploitation or, in the case of naturalists like John Muir, to be left "pristine" and untouched. Interestingly, modern Indians often use the word "wilderness" as a negative label for land that humans have not taken care of for a long time, a land where dense understory shrubbery or thickets of young trees block visibility and movement. ...The Indians believed that a hands-off approach to nature—above all the prohibition on controlled burning—promoted wild and rank landscapes that were inhospitable to life. "The white man sure ruined this country," said James Rust, a Southern Sierra Miwok elder. "It's turned back to wilderness.""*

Two comparisons highlight how strikingly different the connections to nature are for western world and Native Americans. Native Americans value harvesting most of their cultural foods from nature while the average western European get their organic food from the grocery store. Western Europeans do not learn from their parents and grandparents how to collect and manage cultural foods. Even today, Native Americans manage their lands using traditional ecological tools like fire so the land supports the growth of cultural foods, e.g. berries, camas, etc. In contrast, western Europeans do not actively use fire to increase the productivity of their berry bushes but will fertilize their plants in cultivated fields. An exception to this generality is mushrooms. Mushrooms are produced by a fungal symbiont associated with tree roots called mycorrhizae. You need an intact forest habitat for these symbionts to grow and produce their reproductive structures, i.e., the mushroom, that humans and many other animals eat. Western

Europeans collect mushrooms as a hobby from forests even though they can grow several species of mushrooms artificially. There is a long history of western leaders collecting mushroom to relax, e.g., Lenin. Many of the tasty mushrooms are produced by mycorrhizal fungi, e.g., chanterelles, boletus, etc. that only grow well in nature.

The second comparison is the western world idea of becoming a vegetarian to help mitigate climate change impacts. The rationale to become a vegetarian is to reduce your carbon footprint by not eating foods that emit more carbon during its production, e.g., meat that came from cattle grazing on grass. If you decide not to eat animal meat, you have to eat plants to survive. For the western world citizen, eating plants is not a bad practice because they do not recognize plants as having spirits. In contrast, a Native American respects all life whether it is plant or animal and do not distinguish between one and the other. Native Americans thank the spirit of the food they eat. They see everything from a plant to a rock to a person as having a soul. For an American tribal member, eating plants can be just as bad as eating animals. Therefore, they think being a vegetarian is a funny or strange idea.

The idea of a plant having a ‘soul’ is not difficult to defend. Scientific research documented plants communicating with one another. Scientists at the University of Exeter documented how plants under attack will communicate with other plants to by releasing a gas (//www.bbc.co.uk/news/science-environment-16916474). Several years ago, the idea of ‘screaming’ plants rose onto the conscious of the western world when the ability of plants to communicate became common knowledge. If plants do not have any feelings or communicate with each other, it is okay to eat them? But if plants talk to one another and transmit information

when they are being killed, is it alright to eat them? This potentially complicates anyone's decision on whether to become a vegetarian to help the world by reducing your individual carbon footprint.

Despite the western world wanting to make the right decisions related to the environment, the idea of becoming a vegetarian to reduce one's carbon footprint has not been widely adopted by the western world. Becoming a vegetarian to reduce one's carbon footprint is not becoming a norm in western world societies. The number of meat eaters is increasing in most western world countries. In the Economist, it was reported that the global consumption of meat increased from 70 tonnes about fifty years ago to 268 tonnes in 2007; individual consumption of meat had more than doubled during this time period (The Economist 2012). The US was ranked second in the amount of meat consumed per person - ~125 kg per person in 2009 (The Economist 2012). This trend would suggest that becoming a vegetarian is not high on the priority list of the average western world citizen. Therefore becoming a vegetarian is a fad and not because animals have souls. This says nothing about the value of becoming a vegetarian but that most western societies have not formalized it into their cultural practices. Some cultures do not eat animal meat for religious reasons and out of respect for nature and wildlife, e.g., Buddhism.

The dominant western world view of nature diverges from the dominant view held by Native Americans. Native Americans respect all aspects of nature – not just one part. They collect from nature's bounty without feeling the need to bind or dominate nature. They collect and improve the growth of cultural foods provided by nature but do not arbitrarily destroy nature for the fun of it. Their sense of ownership of nature differs considerably from the western world where

nature is isolated from people. The western world view is that nature needs to be controlled. It should be demarcated and confined behind walls, e.g., zoos, where nature can be controlled but can be looked at for human entertainment or enjoyment. In the western world, nature entertains us, e.g., circuses where animals are trained to jump through fire lit circles or stand on their hind legs.

The historical beliefs held by the dominant religions of Western Europe also espoused the dominium of nature by humans. This contrasts the tribes' belief that humans are simply a part of nature and nature does not need to be dominated. When control of nature is the norm, no unused space is acceptable and every piece of land needs to be used and altered for some human benefits. When Europeans colonialists first arrived in North America, they felt it was empty and undeveloped by the tribes. These colonialists began to develop the economic potential of the Americas for their own benefit. They had Manifest Destiny on their side so it was their right to dominate nature. While tribes felt that they had harvested from the land for centuries while keeping the impacts of their human footprint small on the land. Tribes did not over-consume natural resources while the Europeans commonly over-exploited nature for its resources for societal and economic benefits.

It is worthwhile having a brief detour to examine why the western world and Native Americans have such divergent views of nature. These differences impact how each society interconnects with nature and defines the common acceptable practices used to collect nature's capital. If one's view is that nature should be isolated from humans, a nature experience becomes a zoo where humans look but should not touch nature or where over-exploitation of nature's resources is easy

to practice. There is no middle ground for how nature and society interconnect. If a group of people do not dominate nature or control it for purely economic gain, it is easier to find the middle ground to connect society to nature. In this situation, nature does not become a zoo experience and where it is seen or experienced in small doses, e.g., an hour or two of paid visitation time.

7.2 Western world model: Nature bounded by borders

"A wild Indian requires a thousand acres to roam over, while an intelligent man will find a comfortable support for his family on a very small tract...Barbarism is costly, wasteful and extravagant. Intelligence promotes thrift and increases prosperity."

~ Adams 1995 ~

The western European model of nature is integrally combined with their views of what it means to be civilized (see 3.1). The quote above suggests how you interface with nature will define whether you are a barbarian or a civilized person in the western world, i.e., civilized means that you manage a small track of land to farm and not be nomadic. This really means that you put borders around nature and control nature for your own purposes and benefits.

When the Europeans colonialists landed in North America, they were foreigners in a land with abundant resources and no grasp of **nature** or the culture of the people who lived in the Americas. They also did not appreciate what nature in the Americas provided. According to accounts recorded at the Jamestown site, the early English colonialists did not have enough food and did not know how to fish or hunt (Maier et al. 2003). They could see all the fish and the

animals that lived in the sea and forests but were ignorant and too weak to fish and hunt them. They were fortunate that the indigenous inhabitants of these lands that they called “savages” were willing to provide them food (Maier et al. 2003). Despite their need for knowledge and being able to obtain much of their food from the American Indians, the colonialists treated them “with contempt” and would murder Indians “with a nonchalant brutality” (Maier et al. 2003). These colonialists were also reported to destroy Indian corn fields even thought they were dependent on these same fields for food (Maier et al. 2003).

Perhaps because of Manifest Destiny, the settlers did not ‘naturalize’ themselves to their new environment and many died. Maier et al. (2003) recounts

> **“...in one New World settlement after another, the men of Virginia quarreled, stole supplies from the common store for their own consumption or to trade with the Indians for their personal profit, and became at times so obsessed with gold that other, life-sustaining activities ceased.**”

These settlers did not understand the people and lands they conquered. This naivety translates into European colonialists making very unsustainable choices.

Since European consumers are disconnected from nature and how natural resources grow, they have an incomplete understanding of nature and what their human impacts are on nature and its environmental resilience. They also do not recognize how human activities in nature feedback to decrease human resilience. This continues to be a problem today in western industrialized countries. Today, books are published on children’s ‘nature deficit’ and the inability of nature to compete with a multitude of electronic gadgets, e.g., computers, cell phones and games that children as well as adults can play using these technologies. Nature cannot compete with the

sophisticated facsimiles of nature experiences that today's media can offer. Nature is so much more colorful and vibrant when offered on gadgets, and one does not have to deal with the smells or wastes that are part of nature.

Let's see how isolating nature from humans impacts the decisions people make related to nature.

7.2.1 NATURE NEEDS TO BE CONTROLLED

A common western world view of nature, especially in the past, was that nature needed to be controlled and wild animals needed to be kept separate from humans. This meant that nature can be looked at but not touched. Nature was also idealized and revered for its beauty and not for the animals that could bite, kill or maim humans. Humans very quickly kill or hunt animals that are perceived to be dangerous to them. This was a repeating cycle of successful human survival and dominance of this world. Humans did not recognize how important wild and dangerous animals are in sustaining nature in its natural and ecosystem condition. When we don't recognize nature as an interconnected system, it is difficult for a society to decide how to protect or consume nature products so environments and societies continue to be resilient. A detached understanding of nature converts nature into a zoo where exotic animals can be viewed. This is not the 'real' nature but an image that we have fabricated in our mind. Nature at its best is frequently equated as being isolated from humans. Humans touching or altering nature is always bad. The best nature is one without humans.

The European Union has a category of forests called the “untouched forests”. This only means it was “untouched” by Europeans since non-Europeans have been living in these locations for centuries before the arrival of European colonialists. Europeans like to travel to the western US because of the open space that they find there that is so dissimilar to what Europe has to offer today. They did not recognize the role of Native peoples in creating these open spaces that they called untouched. So untouched nature becomes linked to wide open spaces and not the cramped nature found in an industrialized or human community. They continue to have these views today and like to be tourists in dude ranches to experience what they think the old west was all about. Most of these values are not based on the reality on the ground but a rose colored glasses view of what nature could be in an idealized world.

When humans develop their infrastructure to support large cities, they are building what ecologist call ‘novel’ ecosystems. These infrastructures are not designed to adapt to disturbances and are in fact decoupled from nature, e.g., they are isolated infrastructures that are not naturally resilient and need continuous human input of resources to keep operating. Most large western cities were built and designed to optimize the export of human wastes and the import of human survival resources such as food.

Today, discussions occur to blur the edges of cities to make them resilient to human and/or large scale natural disturbances. But we are a long way from this vision. Most urban dwellers experience nature in a small confined area around where you live, e.g., grass lawn or a city park. Today’s cities bring in aspects of nature such as lawns that stimulated the development of several industries and technologies to maintain grass and keeping it from reverting to its ‘wild’ nature, e.g., lawn mowers, fertilizers, pesticides, hedge clippers, etc. These artificial nature constructs

would not survive without continuous human inputs of resources and energy. Most city dwellers have little concept of what existed outside of their artificially constructed borders and nature.

Today's cities are urban sprawls. Cities are isolated from the natural environment and even from one another. For defensive purposes, past cities were built in a way that they isolate western societies from nature and from one another. If you look at European cities of today, they were built when cities needed to be able to close their gates and to defend themselves against marauding soldiers. European cities experienced frequent warfare. Historical fighting between cities resulted in a matrix landscape in present day Germany where one city is protestant while another is catholic. In the catholic town you hear 'Grüss Gott' in the morning while you hear 'Guten Tag' in the protestant town. History has recorded the importance of castles and city fortifications for a town to defend itself when fighting began. Every sizable town had a castle. Each castle needed to secure its water supply when the gates were closed. Therefore, wells were built inside caste walls to ensure the castle's access to fresh water. Fresh water was critical for human survival (see 2.1). Only by hiding inside the castle walls and living off resources collected and stored before you were attacked were you able to increase your chances of surviving an attack.

The western European model of the built environment was carried to North America by the European colonialists. Thomas Jefferson preferred the houses of Europe and not the wooden houses of North America. He is quoted as saying in 1781 (Monticello 2012)

> ***"The inhabitants of Europe, who dwell chiefly in houses of stone or brick, are surely as healthy as those of Virginia. These houses have the advantage too of being warmer***

> ***in winter and cooler in summer than those of wood; of being cheaper in their first construction, where line convenient, and infinitely more durable….A country whose buildings are of wood, can never increase in its improvements to any considerable degree. There duration is highly estimated at 50 years. … Whereas when buildings are of durable materials, every new edifice is an actual and permanent acquisition to the state, adding to its value as well as to its ornament."***

How this view of nature was maintained by western European descendants can be seen in the changing ownerships of farmlands of the Midwest US. Small family farms originally dotted the landscape with towns located between them. Each farm grew numerous crops, and raised cows, pigs, chickens. Their children attended local schools and participated in town activities. Today, large corporations that are usually headquartered on the East coast US own the farmlands. Owners may never have seen the land and seldom visit the property after its initial purchase. These farms have become huge mechanized businesses that usually only grow one crop; whatever is most profitable. Towns that had relied on the small farmers for their existence have become ghost towns. This vision is a good example of a cultural transformation that caused a huge migration where whole educational systems and cultural knowledge disappeared.

7.2.2 ZOO BECOMES A NATURE EXPERIENCE

It's very interesting to look at all the zoos/menageries that have existed from civilizations earliest times. They are found all over the world and owned by all cultures from Europe to Asia. Studying the history of zoos, it's very evident that the first animal menageries were simply a way for a country's ruler to display his/her power and to gain status. The more wealthy citizens of that country followed suit, by building their own personal zoos. Animals were given as tribute from one country to another. There was very little interest in the animal as anything but a possession and a status symbol. Quite often the animal, if it wasn't exotic enough to be very

valuable, was mistreated or even slaughtered for the amusement of some local citizens in enclosed arenas. Most times its carcass wasn't even used for food.

Today, western European descendents lament the lack of nature experiences for their children as they grow up. A zoo becomes the mode by which humans interact and 'bond' with nature. Today's society views nature through a distant lens that is totally tame and unrealistic – it is a 'novel' ecosystem. One benefit of this experience is that you do not have to worry about being checked out as a food item or prey by a hunter or predator. Most Europeans killed or eliminated wild and dangerous animals from their environments a long time ago so they did not have to deal with a dangerous animal that saw humans as a nourishing piece of food.

The western world connection to nature is an experience where you can look but not touch nature. Sobel (2012) recounts several reasons why we have lost our real connections to nature:

> ***"…—urbanization, the changing social structure of families, ticks and mosquito-borne illnesses, the fear of stranger danger. And perhaps even environmental education is one of the causes of children's alienation from nature." …"Much of environmental education today has taken on a museum mentality, where nature is a composed exhibit on the other side of the glass. Children can look at it and study it, but they can't do anything with it. The message is: Nature is fragile. Look, but don't touch. Ironically, this "take only photographs, leave only footprints" mindset crops up in the policies and programs of many organizations trying to preserve the natural world and cultivate children's relationships to it."***

Western world connection to wildlife is mostly seen through a zoo lens that is designed to isolate humans from endangered and dangerous species (Kaufman 2012) but still give

humans an entertaining experience. The first 'zoo' was built more than 4,000 years ago in Egypt but does not fit today's definition of a zoo. It was a private collection of animals kept in a garden by Queen Hatshepsut. It was not available for the general public to visit. The term zoo was first coined by the London Zoological Gardens when it opened its doors in 1847 to a paying public because it needed help to defray its costs (www.zsl.org).

Most historians recognize the oldest built zoo as the one found in the Schönbrunn Palace in Vienna, Austria. It was built by the husband of Maria Theresa of the Habsburg monarchy in 1752 as a summer residence for the royal family. It was not originally built for the general public to visit but as a way to impress other aristocrats. Now it is visited by tourists who come to Schönbrunn Palace. When it was first built, the (www.swlearning.com/pdfs/chapter/0538439513_1.PDF1).

> ***"Empress did not like having dangerous, noisy, and smelly wild animals of prey close to the Summer Palace, so there were no bears or tigers in this first zoo. Under Joseph II, the director of the zoo was sent to Madagascar and Southern Africa in search of exotic animals. Since 1772, over 35 elephants have called this zoo their home each year!"… Today, there are 3,000 animals … at Schönbrunn… The zoo … is one of the World cultural Heritage Sites of the United Nations Educational, Scientific, and Cultural Organization (UNESCO)."***

Two of the authors (KV, DV) visited this zoo 25 years ago. It was not a pleasant experience. The houses or cages were small and looked quite cramped. The surrounding area around the cages did not have any green vegetation to improve the aesthetics of the habitats. The animal habitats were not suitable for animals used to living in tropical climates. Monkeys from the tropics lived in concrete cages in a cold Vienna climate with little protection from the elements. Monkeys were confined to small spaces that were inadequate for their needs compared to what

modern zoos offer today. Monkeys sitting in their cages did not look healthy and appeared to have visible skin problems. They paced back and forth in their cages similar to what is seen for wild animals confined into small spaces. Even tropical parrots were displayed in cages in the open. This zoo was built for its architectural elements and not to satisfy the needs of animals housed in its facilities.

There is a historical context for why the zoo was built the way it was. This zoo was built in the late 1700s when there was little understanding of how zoos could be designed to provide a suitable habitat needed for specific animals. Early built zoos were not built to mimic the natural environments of the wildlife. Today, this zoo is a UNESCO site because of its historical and architectural roots but not because of its animal habitats.

Some 40-50 years ago, every small town scattered across the US used to have a zoo even if it was small. Clovis, a small town in northeast New Mexico, had a zoo even though it only housed a few animals. If you were viable small town and wanted to attract people to settle down in your town because it was a good family town, you had to have a zoo. Of course, animals shown in these zoos were collected from exotic places since no one is going to want to go to a zoo to see a cow or a domestic cat or dog. Zoo animals had to be unique so that visitors would continue to visit the zoo with their children. The popularity of circuses coming to small towns also attests to human fascination in seeing exotic animals performing for their benefit.

A zoo was designed to provide its visitors sanitized views of nature. It kept the visitor at

a distance from the reality of animal wastes, dirt or grime that are found in nature. Since fewer Euro-American descendants of the earlier colonialists hunt today, their experience of nature is this sanitized and tame view that zoo's can offer. There is no danger in going to a zoo because the animals are behind cages and are unable to touch you. Zoos would be a decidedly different experience if animals were released into the zoo grounds so humans could play out a game of hide-and-seek or a survival game with these animals, e.g., either the animal won when you became their meal for the day or you killed the animal and won yourself a trophy to hang on your wall. This is not going to happen. Humans do not want this kind of experience even if this story has been written in science fiction books. Many of the animals that are popular exhibits in zoos are natural predators on humans in the wild and would attack humans if given half a chance. So the predatory behavior of zoo animals is not allowed to become part of the zoo experience because of human safety concerns.

7.2.3 TODAYS NATURE: Bounded larger artificial landscapes

Today, the role of zoos is starting to change. Zoos are unable to maintain a sufficiently large population of individual species without breeding animals with genetic defects. Zoos will never be able to sustain a large viable population of individual species as can be found in nature (Kaufman 2012). Some zoos are the only locations where endangered species are found today since animals have eliminated or altered their habitats. Most animals cannot be returned to the wild to live out their lives in their former habitats.

It is challenging and financially difficult to keep healthy populations of all the animals

housed in zoos. Kaufman (2012) recounts how the Copenhagen Zoo had to kill two leopard cubs that were about two years old "whose genes were already overrepresented in the collective zoo population". This zoo "annually puts to death some 20 to 30 healthy exotic animals – gazelles, hippopotamuses, and on rare occasions even chimps" (Kaufman 2012). The rationale given for this practice was that most of the offspring would "die from predation, starvation or injury" (Kaufman 2012). Zoos have been criticized for euthanizing children of animals that they breed. However, zoos do not have the funding to financially support and maintain large populations of many species on its grounds. Zoos defend their actions as the need to allow animals to raise their offspring so they can experience parenting, even if they ultimately euthanize them (Kaufman 2012).

Starting in the early 1900s, zoos began to dramatically change. People became more familiar with animals from all over the world. Whether this was from the books they read, the nature programs they watched on TV or actual travel around the world is not completely certain. Whatever caused it, people became bored when they went to their local zoo and saw an animal simply lying in their small cage without much sign of activity. Others were greatly disturbed by the sight of these caged animals that they knew should be running or climbing in a more natural setting. Ideas began to circulate about how the animals should be taken care of and displayed in settings that were closer to how they would live in the wild.

In 1907, the German entrepreneur Carl Hagenbeck founded the Tierpark Hagenbeck in Stellingen, now part of Hamburg. It is known for being the first zoo that used open enclosures that were surrounded by moats, rather than the barred cages used in most other zoos. This

improved the lives of the animals and came closer to approximating their natural environment. This also enhanced the education of people viewing the animals since they saw them in something closer to their "wild state".

In 1931, the Zoological Society of London opened the Whipsnade zoo in Bedfordshire, England. This zoo was the first wild Animal Park, or open range zoo, and contains 243 ha of land for its animals. Since the 1970s, the Zoological Society of San Diego maintains 728 ha as the San Diego Zoo Safari Park. The Werribee Open Range Zoo in Melbourne, Australia has 202 ha and displays animals living in a savannah.

Relative new terms for zoos have been coined for the 20th century. They are now called "conservation parks", "bioparks", open-range zoos, or safari zoos. Adapting a new name is a strategy being used by zoo professionals to distance them from the stereotypical, cruel and nowadays highly criticized zoo concepts that existed prior to the 20th century.

These parks and zoos cover very large areas that allow the animals to run or climb and animals that lived in herds could be together as they would in the wild. For the most part, this type of zoo has fewer animals. Animals are kept in larger outdoor enclosures using moats and fences to contain them from humans rather than cages. Most Safari Parks allow visitors to drive through them and come in closer contact with the animals. Sometimes visitors get closer than they might want.

When ecology became a matter of more importance to the general public in the mid 1970s, a

number of zoos started to consider making conservation their central role. This conservation now includes special breeding programs for endangered animals. These activities also take place outside the zoos, e.g., the Wildlife Conservation Society has sites all over the world where research and conservation programs take place.

The position of most modern zoos in North America, Europe and Australasia, particularly those countries that have scientific zoological societies, is that they have wild animals on display for the conservation of endangered species. Research and education purposes or the entertainment of visitors is far from their primary function.

There have been many debates on the role of zoos to society and whether an industrialized society should have wild animals caged for public view and entertainment. Starting in the 1970s, the environmental movement contributed to the dialogue on what role zoos should have in our society. Some question the value of experiencing or seeing animals under the artificial conditions found in zoos. The animal rights organization People for the Ethical Treatment of Animals (PETA) and the anti-zoo group Captive Animals Protection Society argue that the zoos main purpose is NOT research or to aid in conservation, but that they are geared more toward finding better ways to breed and maintain animals in captivity. Some critics of zoos argue that zoo animals are treated more as objects than the living creations that they are, and that their captivity often drives them insane. A 40-year study conducted at Oxford University found that polar bears, lions, tigers and cheetahs show the greatest evidence of stress. A PETA investigation of the zoos in the U.S. found several species of bears displaying neurotic behavior.

During the 1970-1980s, larger zoos around the world discontinued the practice of having animals perform tricks for their visitors because the zoo professionals were engaging in more conservation programs. This also removed the possibility of their animals being abused, which was usually required to get the animals to perform.

Zoos are a decidedly western European experience and one that most indigenous communities would not establish. Native Americans have not separated wildlife or nature into discrete and sanitized experiences. Partly this is due to the fact that they are busy surviving and hunting wildlife for food. Wildlife has spirits and should be revered and not be confined into a bordered experience.

7.3 Native American model: Borderless nature

I do not think the measure of a civilization is how tall its buildings of concrete are,
But rather how well its people have learned to relate
to their environment and fellow man.

~ Sun Bear of the Chippewa Tribe ~

The quote by Sun Bear articulates well the Native American view of nature. Nature is not compared to the human 'built' environment, e.g., our castles, churches, fortresses, skyscrapers, etc. For Native Americans, how civilized you are depends on how well you relate to nature.

7.3.1 American tribes: Nature, sense of property is culture based

You must teach your children that the ground beneath their feet is the ashes of your grandfathers. So that they will respect the land, tell your children that the earth is rich with the lives of our kin. Teach your children what we have taught our children, that the earth is our mother. Whatever befalls the earth befalls the sons of the earth. If men spit upon the ground, they spit upon themselves.

~ Unknown Native American quote ~

There are few cultures in the world that never "caged animals" in zoos to study them, to view them or to be entertained by them. Only those cultures that believe everything from a rock to a tree has a "soul" refrained from this practice. Some of those cultures include the Eskimos, the Native American Indians and the Australian Aborigines. These values of nature are rooted in these cultures views of property rights. Therefore, it is important to briefly discuss Native American views of property rights since it is integral to how they interconnect to nature.

7.3.2 NATIVE AMERICAN VIEWS ON PROPERTY RIGHTS (Told by Mike, Colville Confederated Tribes)

When I entered into First Year Law at the University of Washington in 1972, the classes would state that Real Property law is like a "bundle of sticks", it is actually a collection of rights for

lands. Property has spatial aspects to it. There is length and width, the square footage, acreage, square miles, for example. There is also up and down aspect, the mineral and subsurface water rights below and also the air rights, which go vertically up, which may have visual issues or even air quality factors or aircraft rights which can interfere. Property also has a time aspect. You can rent a hotel room for one night. Or you can rent a room or pasture or office for a month. Or you can enter into a lease. Or you can outright purchase lands. If you want "total" ownership, this is fee simple land. You own the physical aspects and you own the time aspect, there is no limit on time, it is yours forever. But as property class progresses, you will be taught that there are no absolutes in law, there are always exceptions, shades of gray and the devil is in the details. Thousands, if not millions of land transactions take place every day for rents, leases, and purchases in the US. There is also a role for the state too, but introductory law does not usually dwell on it too much. If a freeway needs to be built, for example, the state has authority to condemn land for the good of the whole. But most of the emphasis is on the rights of the individual. Individuals buy land for business or for homes. Corporations can buy land too of course. Transactions get filed with the local county governments. Tribes operate much differently.

If the subject of Native American land ownership ever comes up at all to the lay person, it usually hits on a couple aspects. One you will often hear that the land was not actually being used anyway or that the land was vacant and there for the taking. Or maybe the trade of $24 of beads and trinkets for Manhattan Island in the Colonial days will be mentioned, then there will be a couple chuckles as to the ignorance of the Natives and the discussion moves on to something else. Lands in the Pacific Northwest were rich with natural resources on the land and

on the water. Salmon were abundant. The land supported edible plants such as camas roots, bitteroots, wild carrots, asparagus, and many others. There was an abundance of wild game such as elk, deer, and moose. Often, these foods were ready to gather only at certain times of the year. Over time, the tribes made the seasonal rounds and knew when to gather and harvest nature's foods. Their concepts of land ownership were influenced by the food gathering patterns, by when they were ready to harvest. Native Americans would come in and harvest and then leave to the next site. Their culture evolved to be highly mobile in order to take advantage of the natural abundance. It made no sense to make permanent settlements at any one site. The bounty of the land was also shared, there was a communal aspect. Roots, berries, deer, elk, they provided for the family, but it also normal for a share of the foods to be distributed throughout the community, the tribe. The poor, the elders, and the sick were fed and taken care of by the tribe. The earth was viewed as the mother. You respect your mother. You do not abuse your mother. When the US government came in during the late 1800's to convert the Indians into agricultural people, the Chiefs would say, do you expect us to plow up the ground, that would be like dragging a knife across our mother's heart. You also do not sell your mother.

The Columbia River begins in what is now British Columbia, Canada and flows southwest into the Pacific Ocean crossing the States of Washington, Idaho, and Oregon. The River was the dominant feature in the landscape and life of the Columbia River tribes. It provided salmon in great abundance and the people built their economies and cultures around the great River and its food supply. But the river also carved its way through mountains and these mountains and valleys provided a rich variety of terrain and vegetation and wildlife that all provided a living to the thousands of Native Americans, whose life styles had been stable for at least 10,000 years

since the last ice age.

As a young child, I was raised by grandparents, William and Mary Marchand. They were Arrow Lakes people and members of the Colville Tribes in Washington State. Grandfather was an entrepreneur. He had a sawmill, raised hay and cattle, and did other businesses. Grandmother was very traditional, she liked to live the old ways, gathered roots and berries, dried salmon, and preferred living in tents during the warmer months and lived very much like our people had for thousands of years. We spent many nights around the campfire and she would tell stories and teach us. She was the daughter of the last hereditary Chief Aurapahkin, and she knew a lot of stories. In winter, we lived in permanent homes, like most Americans. My grandparents actually had three homes and owned a lot of property. She followed the roots and berries and salmon around throughout the seasons. In the spring we camped at Owhi Lake to catch the trout. When the roots were ready, she camped in the root fields. When the salmon runs came, she camped at the mouth of the Okanogan River where it meets the Columbia River. Prior to 1942, she camped at the once great fishery at Kettle Falls, but it was inundated by the Grand Coulee Dam. In the Fall, she camped in the mountains near Sherman Pass to pick huckleberries. Every year she would follow the roots, the berries, the trout, and especially the salmon. Distances covered would be hundreds of kilometers in the course of the year. They would load up a couple of cars with camping gear and provisions and head for the outdoors. By her lifetime of experience, she knew when it was time to go camping and she would return to the same places each year. It was an annual routine that she followed all her life. The food was gathered at the camps, and then it was either dried or canned usually. Stored for the winter months when it was eaten. There would be big feasts for the clan in the spring, summer, and fall seasons. The men would

sometimes go off on their own and hunt too. Then in spring the cycle would repeat. This is how the Columbia River Indians lived for thousands of years. Her people were from the headwaters of the Columbia River, the Arrow Lakes people. But all the downriver tribes had similar patterns of life. When she was younger they traveled the same routes on horseback.

Grandmother's view of the land and ownership were different then the European view. She used the land only at certain times of the year, such as when the fish were ready to harvest or when the berries were ready to pick. Some of the lands were owned by the tribe, some owned by the Federal or State governments, but she considered them her traditional gathering grounds. Over thousands of years, regional boundaries between tribes had been established, sometimes in times past, there were wars and skirmishes between tribes, but over time these boundaries were established and respected as tribal territories. At any given moment in time, however, from the outsider viewpoint, it was likely that any particular lands appeared vacant.

The first non-Indian visitor to my grandmother's people was explorer David Thompson. His expedition came through the Columbia River in 1803. He met with my grandmother's ancestor Chief Gregory at Kettle Falls and witnesses the Arrow Lakes people fishing. He noted they were pulling 2,000 salmon out of a single fish trap in one day. The people placed great baskets beneath the Kettle Falls and the traps filled up with salmon who were trying to jump up the falls. This practice continued right up until the 1930's. My grandfather, William Marchand was arrested by the State of Washington for using these same basket traps, not approved by the State. The fish were shared with the tribe. The poor and elderly and the sick were taken care of. The surplus was traded. It was big business. At one time there were bales of dried salmon stacked all

around the Kettle Falls. The tribe was wealthy. Thompson then went downriver and passed by the mouth of the Okanogan River and reported fishing camps and horse racing. Thompson said the long houses they lived in were 100 meters in length. As a young boy in the 1960's, this same mouth of the Okanogan River fishing site is where my grandmother would put her tent each summer. This ancient fishing site at the Okanogan mouth was also later inundated by another dam in 1964, named Wells Dam. So that is the history, Native Americans getting continually displaced by US developments and interests.

7.3.3 No walls: Active landscape management, nature not wasted

If you continue to contaminate your own home,
you will eventually suffocate in your own waste.

~ Lakota Proverb ~

Prior to the arrival of the European colonialists, tribes had customary land areas where they would harvest resources. They did not establish formal boundaries defined by walls to demarcate lands where they would harvest these resources. In contrast, Europeans are superb wall builders and broke the landscape up into discrete units for very specific purposes. When the Romans could not control the marauding barbarians of northern Europeans, they built the Hadrian's Wall to keep these people from attacking Roman settlements. Building walls has served western Europeans well and allowed them to control nature in tidy and discrete blocks of land use. The people who lived in these blocks liked nature with borders. There are no structures built by Native Americans that can be found today that split the lands up.

Even though Native Americans were regarded as "hunter/gatherers" they had extensive husbandry practices to encourage growth of valuable resources (Bonnicksen et al. 1999). How do we know the tribes were active forest resource managers? Is it possible that the evidence of fire were just accidental lighting strikes in forests during lightning storms? Or perhaps it was just natural occurrences of lightning strikes? Evidence supporting active management of lands and wildlife are derived from (Bonnicksen et al. 1999):

- Early accounts by missionaries and fur trappers who described these activities.
- Natural fires generally occur in late summer and early autumn when plant moisture is reduced and dry undergrowth has accumulated. In contrast, human induced fires are set primarily in the spring when it is possible to stimulate maximum plant growth, **and** at times that the fire could be easily managed.

It is commonly accepted today that Native Americans managed the land and the animals that lived on these lands (Bonnicksen et al. 1999). Reports suggest that Native Americans managed the ungulate populations. This is supported by the observation that it was a rare sight for American settlers to see a moose after 1825 or an elk in Yellowstone National Park after 1835 – 1872. Today this is a very different situation with Yellowstone National Park having at least 100,000 elk living inside the park borders. The beaver populations were also quite high during the early years when Euro-Americans first arrived in North America. The high beaver populations also support the management of elk since the preferred wood used by beavers is young aspen saplings that are also frequently grazed by elk (Bonnicksen et al. 1999). Bonnicksen et al. (1999) wrote

> ***"American Indians protected habitats and promoted biodiversity in plant and animal communities by keeping ungulate numbers low ... Prior to the early 1800s, for example, millions of beaver (<u>Castor</u> <u>canadensis</u>) occupied lush riparian zones***

> ***throughout the West. Beaver were so abundant that in 1825, Peter Skene Ogden's party trapped 511 beavers in only five days on Utah's Ogden River. In 1829, Ogden also reported that his fur brigade took 1,800 beaver in a month on Nevada's Humboldt River ... Yellowstone too once contained large numbers of beaver, but that species is now extinct on the park's northern range. Without American Indian hunters, the park's burgeoning elk population has nearly destroyed the willow and aspen communities that beaver need for food and dam-building materials ... So American Indian hunting benefited all species by preventing habitat destruction by large populations of ungulates."***

This of course all changed when the Euro-American colonialists arrived. They began to demarcate land into areas with borders. They began to force Native Americans onto reservations and to remove them as the landscape managers. Treaties set boundaries where there had not been boundaries beforehand. Today these forced settlement of several tribes on one reservation resulted in the merger of tribes that historically did not live together. This has created artificial boundaries for tribes that they are still attempting to deal with. Today, tribes have to address who has rights to the wealth of the resources generated on the reservation. Who is a 'real' Indian? Who belongs on the reduced land base and who should benefit from whatever resources are harvested from these lands?

Even though some of the Native America tribes were superb agriculturalists, western European colonialists wanted them to practice 'real' farming as defined by Europeans. European colonialists justified taking Indian lands since the American Indians were not using the lands at the intensity that made you 'civilized', i.e., the lands appeared to be vacant and not being managed. Of course, this was not the case but Europeans did not recognize a land-use that differed from theirs. The European model of land use is to transform or convert nature into something not resembling nature. Nature needed to be controlled.

There were fundamental differences in how agriculture was practiced by the Euro-American settlers and the Native Americans. Native Americans farming practices followed traditional ecological knowledge where nature provides food without needing to be converted into industrial scale farming fields. Nature did not need to be totally transformed to feed people. Europeans, however, needed more intensive agriculture to produce enough food to feed the growing populations in a rapidly industrializing Europe. As recounted by Maier et al. (2003), Europe could not have industrialized if they had been dependent upon growing the food crops that already grew on the European continent. European industrialization was possible because of the more than 300 food and pleasure crops that were taken back to Europe by the early colonialists (Maier et al. 2003). These food crops grew in Europe and had higher yields compared to what had historically been planted in Europe.

The quote at the beginning of this section reflects an aspect of Native American views of nature. It shows the importance of not wasting nature or its resources. As the Lakota proverb mentions, you will suffocate in your own waste if you convert too much of natures capital into wastes. Native Americans are not wasteful and use every part of any resource they collect. The western world is still trying to figure out how to deal with the volumes of wastes that industrialization produces.

To be sustainable we need to know when our consumption of resources is wasteful or when your continued use will further aggravate its scarcity. Native Americans knew when scarcity was possible and adjusted their behavior accordingly instead of waiting for the resource to become scarce before working on solutions. This is similar to the quote about knowing when the well

will contain less water and not to know this fact when the well is already dry. Then it is too late. When the well is dry, it is too late to resolve this problem. You have also lost all your options if you wait too long to work on a solution. It is difficult for western societies to proactively work on solutions. It is easier to work on a problem when it becomes a problem. This is partially the result of too many problems that need to be resolved and the difficulty of prioritizing which problems to tackle first.

8 Portfolio Element #2: How to make practical and realistic decisions

Never trouble anyone regarding his religion—respect him in his beliefs, and demand that he respect yours.

~ Tecumseh (1768-1813) Shawnee Indian chief who led an intertribal alliance that resisted white rule ~

8.1 To become sustainable don't 'Throw out the baby with the bathwater'

Sustainability requires a long-term view and unfortunately most western world people are accustomed to viewing problems as something that needs to be immediately resolved and not something that might exist for decades. People become tired of a problem if it cannot be resolved quickly. There are too many other pressing issues that need attention to continue to work on a tricky problem.

We contend that this short term view is driven by tools that allow rapid assessments mostly using resource economics tools and the assumption that technology will ultimately solve any problem. There is a false sense of security in hoping technology will always produce a solution. Technology has always come through in the past so why would it not produce a solution for future problems? To be sustainable, however, technology should only be part of the solution. A purely technological solution will make societies and environments less resilient, not more resilient.

We contend that western European tools and decision-process models are applied inappropriately to all locations. This happens even when the solutions are 'foreign' to the local context and therefore difficult to 'naturalize' for the local situation. We are not to say that western European tools and decision-processes have no role in today's world. But they are being implemented without including the local knowledge that would make them place-based and better to be able to provide a solution that works locally. If decisions are made by foreigners who can gain economically from the decisions, it is easy to justify using a business model supported by knowledge developed in geographically distant locations. The context of the local and foreign place appears to be similar so it is easy to justify using this 'foreign' knowledge of a local place. Such an approach ignores the people who live on the land and have memories of how this land works. These people how these decisions will impact their local survival.

A business model approach to decision-making shifts the focus to capitalize on the efficiency of technology to maximize profits and economic returns (see 10.0). It appears to be a win-win situation. Decisions can be made quickly when supported by economic analyses that suggest

less costs and more revenues will be generated by a decision. Because of this, it is difficult to slow down the decision-process and to include non-economic decision models in the assessment process. When economic criteria drive the decision process, building large-scale centralized bioenergy facilities are always more economical. Studies suggesting decentralized facilities are economical to build in rural areas, where the transportation costs become prohibitive to supply biomass to large centralized facilities, do not rise to the top of the list of options to consider. Distributed energy systems are as economical in rural and remote areas as in urban areas because of the loss of economic efficiency with scale (Schumacher 1975). These centralized facilities are also more expensive to build and the costs to the community and business owners are significant when these facility are no longer cost effective and are forced to shut down.

Interestingly, a large centralized facility is also less resilient and economically viable after a natural disturbance. Under normal conditions, centralized facilities based on biomass are typically most economical if the resource supplies are within a 100 km circle around a wood energy facility. Beyond this distance, it is not economical to transport a bulky and high density material to a centralized facility. Subsequent to a disturbance like a hurricane, the transportation system is broken and it is more difficult to keep such a facility operational. So the economic analyses are conducted under normal conditions and not during atypical times. The atypical times would probably be more buffered if social and environmental factors had been factored into the analyses. Taleb (2012) wrote

> ***"Projects of $100 million seem rational, but they tend to have much higher percentage overruns than projects of, say, $10 million. Great size in itself, when it exceeds a certain threshold, produces fragility and can eradicate all the gains from economies of scale. To see how large things can be fragile, consider the difference between an elephant and a mouse: The former breaks a leg at the slightest fall, while the latter is***

unharmed by a drop several multiples of its height. This explains why we have so many more mice than elephants."

Despite the recognition that social, economic and environmental issues have to be examined in all decision processes, it has been problematic to expand economic analyses to formally, not anecdotally, include other factors. Environmental and social factors are complex, last decades and add competing solutions to a decision process (Gordon and Berry 2006). This would definitely slow down the decision process since the information in these areas is less concrete. It is easier to isolate the social and environmental factors from the economic assessment and appears to address a problem when in reality it may be a cosmetic solution (Vogt et al. 2010). Since many funding organizations expect to see economic data, it is the most common tool used to explore the viability of different business options. This situation will be difficult to change because today's business leaders drive economic growth and determine what tools are used.

We feel that it is important to identify when a problem can be assessed using economic tools and when an economic tool is used to solve the wrong problem. It is worthwhile to go back to the definitions of the terms ecosystem and adaptive management made by John Gordon (1993). These terms help to identify which tools might work best under what conditions. Economic tools work best when decisions are being made on land scarcity issues. The choices are clear since the production capacities of the land to produce any products are finite. Economic tools do not work well when there is a need to factor in uncertainty or scarcity of scientific knowledge and information. Under this situation, the wrong information can be easily used to calculate the costs and benefits. Most resource problems decisions are made under the latter umbrella and not the former.

When scarcity of knowledge is not acknowledged, business solutions may exclude relevant information that may direct you to pursue a solution that is not economically viable in the long-term. This approach can cause you to 'throw out the baby with the bathwater' or as it was originally spoken ‘das Kind mit dem Bad ausschütten’ (Wilton 2004). Murner used this saying as a proverb in his satirical book that he wrote in 1512 and he depicted in the wood cutting shown on the right (Wilton 2004). It refers to German villagers at the beginning of the 16th century taking turns to bath in the same tub of water. Men had first rights to bathe followed by women, children and then finally babies. The idea was that by the time babies were being bathed, the water would be so grey and dirty that there was a chance that a baby could accidentally be thrown out with the water. This action is not resilient because it causes a bad thing – dirty water – to be thrown out with the good thing – baby. Today it is recognized that resilience is the ability of the social and natural system to adapt to change and to continue to maintain all the components of an ecosystem and its connections and functions. If there is a scarcity of knowledge, there is a strong possibility that wrong variable is used in the decision process. It is easier to accept knowledge provided by special interest groups since they are able to make a good case for their values without revealing the selective nature of this data. They appear to espouse the truth. Today, it has become more difficult to include the special interest groups, who have a vested interest in the outcome of any decision process, but not give up control of the

process to them.

8.2 Leave your individual biases outside the door

8.2.1 'False' Indian stories

Since early American Indians were hunter/gatherers, the perception is that people who live by collecting from nature will spend most of their time searching for food. People assume that hunter/gatherers have no time to create cultural artifacts since survival is of the utmost importance. Survival meant foraging for food. It did not mean crafting baskets or decorative ornaments that had no utilitarian uses. These misconceptions still exist today. The reality is that for hundreds of years, Native American hunter/gatherers spent less time acquiring the essentials for survival than Europeans living at the same timeframe. Miller (2012) wrote that most Native Americans did not spend all their time collecting food and pursued many different cultural activities for more than half of their awake hours. Miller (2012) wrote

> ***"For many Indians, their work and ingenuity provided an ample source of life's necessities and their "economic year"—that is, the time it took them to produce all their annual food and subsistence needs—was only about four to five months. That short economic year left plenty of time for leisure, culture, and ceremony. In contrast, most Americans today have an economic year of 50 weeks because we only get two weeks of vacation."***

Physical anthropologists studies on the origins of agriculture support the idea that hunter/gatherers did not have to spend all their time searching for food to remain healthy. In contrast, they wrote that as agriculture developed people became smaller and were prone to more diseases than their hunter/gatherer forbearers (Richards 2002). Anthropologists suggest that once people became full time farmers that they spent most of their time working at surviving. They were not crafting decorative artifacts that today's generation are interested in buying as antiques.

They did not spend time being creative, they survived by plowing fields and feeding their animals. This was hard work that started before the sun was visible in the horizon and continued until the sun set.

It is ironic that the western Europeans wanted to civilize American Indians and to force them to practice the European type of agriculture (see 3.1.1). The European agricultural practices did not leave time for people to be creative and to use the right side of the brain (see 6.0). In contrast, the hunter/gatherers had more time to spend on artistic activities and led a healthier life. American Indians produced abundant examples of arts and crafts, e.g., blanket weaving, bead work, pottery, baskets and so on. Today Americans spend thousands of dollars to buy these Indian artifacts when they show up in antique road shows or at auctions.

This continuing fascination with anything Indian is apparent from the high price paid by a private collector for Chief Joseph's war shirt. This shirt was sold in an auction on July 21, 2012 and its sale is recounted below by Martin Griffith for the Associated Press:

> ***"Chief Joseph wore the shirt in 1877 in the earliest known photo of him, and again while posing for a portrait by Cyrenius Hall in 1878. That painting, which was used for a U.S. postage stamp, hangs in the Smithsonian."***
>
> ***"The poncho-style war shirt was made of two soft skins, likely deerskin. It features beadwork with bold geometric designs and bright colors. Warriors kept such prestigious garments clean in a saddle bag on their horse or carefully stored while in camp, to be worn only on special occasions, ..."***
>
> ***"The photo and portrait showing the war shirt were made shortly after Chief Joseph led 750 Nez Perce tribal members on an epic 1,700-mile journey from Oregon to Montana in an unsuccessful bid to reach Canada and avoid being confined to a reservation. They were forced to surrender in 1877 after U.S. troops stopped them about 40 miles south of the Canadian border."***

Today, perceptions of non-Indians on what it means to be an ‘Indian’ are fabrications and myths developed by Hollywood, other media and movie outlets. In Indonesia, movies have depicted Native American tribes as loving war so the average person in Indonesia thinks that American Indians like to fight all the time. This is not correct but movies keep this idea alive and at the forefront of the movie going Indonesian public. This is a romanticized view developed by the western world because it sells movies. If American tribes were depicted in movies constructing crafts like baskets, no one would pay money to see such a movie.

American Indians seemed to be frequently confused with people coming from India. This early confusion was probably warranted since the early explorers really did not know where they had landed. It is said that Columbus to his dying days never realized that he had landed in a different world, the Americas. These old confused ideas became the ‘truth’ about American Indians and have been propagated to this day. Wilton (2009) describes the origins of the word Indian as being “racially motivated, false etymological origin”. The media propagated view suggests American Indians are either ‘savages’ or ‘noble savages’. It does not repeat what is written in etymological dictionaries that attribute American Indians with “honesty or intelligence”. If one looks up the etymological dictionary for Indian (Etymonline 2012), it is revealing to see that it has a very different meaning when it was originally used. It has been corrupted today by comedians like Carlyle who called Indians the ‘Red Indians’:

> ***"inhabit of India or South Asia," c.1300 (noun and adjective); applied to the native inhabitants of the Americas from at least 1553, on the mistaken notion that America was the eastern end of Asia.*** **Red Indian,** ***to distinguish them from inhabitants of India, is first attested 1831 (Carlyle) but was not commonly used in N. America. More than 500 modern phrases include*** **Indian,** ***most of them U.S. and most impugning honesty or intelligence”***

Native Americans have been characterized as either bad or good depending on who is having a conversation. They are not described as having the two aspects of the coyote that is a blend of the good and bad depending on the situation. Probably every person in this world is more coyote like but no one wants to admit that they have both good and bad thoughts and behavior attributes. The goal is to be good. No one will admit to bad behavior. In the western world, a person always succumbs to the good voice or the angel who is talking to you on their right shoulder and telling you what to do. No one would admit that he/she listened to the bad voice or the devil talking to you on your left shoulder.

Unfortunately once society builds a view an idea about someone or a group of people; it is very difficult to change this view. This is well summarized in a New York Times opinion article written by David Treuer -- an Ojibwe Indian (Treuer 2012). He wrote

> ***"Growing up as I did, on the Ojibwe Leech Lake Reservation in northern Minnesota, it was patently obvious to me that Indians came in all different shapes and colors. I'm fairly light-skinned and have been told many times that….I can't be an Indian, not a real one."***

David Treurer mentioned the old American narrative on who is good or bad when he wrote

> ***"where Indians are noble and dark and on horseback, and just as divorced from the textured complexity of the American experience; one where the good guys are broad-chested and the villains twirl their mustaches…".***

This inaccurate view of Indians and what they should look like is part of past narrative that continues today. What is interesting about this is that if you do not fit our pre-conceived notions

of what you are supposed to look and act like, our response is to say that you are not a 'real' Indian.

This idealized image of the Wild West and the role Indians play in it has continued since the first European colonialists landed on North America. Seymour (2012) summarized how in the late 1880s English gentlemen tried to build a traditional hunting club in the prairies of present day US. They did not really want the REAL Wild West but a facsimile of what they had back in England. Seymour wrote:

> ***"Back in the late 1880s, Runnymede was the spot where a group of English colonists decided to live out the fantasies they had read about in the exotic cowboy tales of Wild Bill Hickok and Calamity Jane. Known derisively as "remittance men" because of the comfortable allowances they regularly received from their daddies back home, these young toffs had been lured to Kansas by Francis Turnley, a wealthy Irish landowner's son from County Antrim who had gambled his future on the chance that a new railway line would lay its tracks straight through his personal fief: Runnymede.***
>
> ***Turnley worked hard to recreate upon the prairie a perfectly pukka England. Runnymede offered not only polo matches, tennis tournaments and cricket, but a splendid opportunity for aspiring cowboys to don their buckskins and fire off six-shooters as they swaggered down Main Street. The new arrivals from England loved Runnymede. Established locals, especially the pious German-American settlers at nearby Harper, didn't think much of the antics of these grandee colonists. …"***

In the 1880s, English gentlemen romanticized western cowboy life. This life had no reality to it but it was real to the gentlemen play acting the 'cowboy life'. This life did not include Indians or the hardship of living in the Wild West. This was a decidedly unrealistic view of how difficult it was to survive in the western US. Since the new federal government needed to attract settlers out west to retain their control of these lands, they were going to tell prospective settlers the truth. If they had, no one would have wanted to move out west. The romanticized imagery worked even though Runnymede did not survive.

This same romanticized fascination for cowboys and Indians that drew these earlier settlers to the Wild West continues today for many tourists. Western European tourists want to visit 'dude ranches'. Their image of an Indian is a person who wears the outfits that urban myths suggest that they should wear, e.g., buckskin clothing, long hair that is braided, and an eagle feather hooked through your single braid. European tourists today want to visit Indian reservations when on vacation in the US and to spend time at western dude ranches to practice 'playing' cowboy and Indians. These experiences, however, can be similar to going to a zoo for those living on the reservation when tourists arrive and want to have their picture taken with a 'real Indian'. Dude ranches are similar to visiting Disneyland except the tourist has the pleasure of roping a tame cow or riding a horse while wearing cowboy boots, spurs, a leather vest and preferably a 10 gallon cowboy hat. A decidedly sanitized movie experience! This experience is similar to the French courtesans during Louis XIVs time dressing up in peasant clothing and playing out the 'idealic' good life of a shepherdess. They really had no grasp of how hard this life really was. For the French courtesans it was entertainment and they really were not interested in the hard life of a shepherdess. It allowed them for a few hours or days to relax away from the court politics back in Paris.

This fascination with the old west continues unabated today. A wealthy American businessman is turning his fascination with the west of the past by building a 'faux' town to house his collection of western memorabilia. He is investing millions of dollars in building this western town on his lands in Colorado. This town is being built only for his pleasure and that of his friends. It is not a 'faux' town that will generate income from paying tourists like many of the

western ghost towns. This faux town is described in a newspaper article written in the Huffington Post (Yglesias 2012):

> ***"There's a new town in Colorado. It has about 50 buildings, including a saloon, a church, a jail, a firehouse, a livery and a train station. Soon, it will have a mansion on a hill so the town's founder can look down on his creation. But don't expect to move here — or even to visit.***
>
> ***This town is billionaire Bill Koch's fascination with the Old West rendered in bricks and mortar. It sits on a 420-acre meadow on his Bear Ranch below the Raggeds Wilderness Area in Gunnison County. It's an unpopulated, faux Western town that might boggle the mind of anyone who ever had a playhouse. Its full-size buildings come with polished brass and carved-mahogany details and are fronted with board sidewalks and underpinned by a water-treatment system. A locked gate with guards screens who comes and goes.***
>
> ***Koch's project manager has told county officials that the enclave in the middle of the 6,400-acre Bear Ranch won't ever be open to the public. It is simply for Koch's amusement and for that of his family and friends — and historians. It is the ultimate repository for his huge collection of Western memorabilia."***

Interestingly, in contrast to the western industrialized view, the indigenous communities in Indonesia do not want to mimic the Native American. They do not romanticize what it means to be an American Indian. They want to learn about Native American governance structure and how they make economic and social decisions. They do not have a cosmetic or artificial view of Native Americans. They feel a bond with them because of their cultural and traditional knowledge and values. They are interested in learning from the American tribal successes, i.e., lessons learnt, in resources management and their governance structures. Most global indigenous communities continue to have strong traditional and cultural roots that they want to maintain or restore despite living within the confines and constraints of a highly industrializing country.

8.2.2 Stories of REAL Indians

Our contention is that people following the western European model of human development need to become 'Indian' if we are to humanize and address scarcity of knowledge in our decision-making process for natural resources. To become an Indian cannot be a cosmetic choice or where the facsimile is propped up as success. This will be a challenging endeavor since the western industrialized model of the 'perfect man' (Alter 2012) is not an Indian.

The western world listens to those who satisfy their idea of who are similar in appearance and behavior. You trust someone who looks like and acts like you. A Wall Street Journal article summarized what is the 'perfect man' based on the readers of E-book readers who could customize their romance novels (Alter 2012). "The perfect man, according to data collected by digital publisher Coliloquy from romance-novel readers, has a European accent and is in his 30s with black hair and green eyes. Optimal chest-hair level: 'slightly hairy.'" (Alter 2012). Forty-two percent of the readers also preferred a 'rugged body type'. You might say that this has nothing to do with how we make decisions but it does. There is a large data based suggesting that our preferences and the decisions that we make are influenced by who we trust and whose information we consider to be valid. We also like people to be similar to us, e.g., if company boss plays golf or tennis, it behooves an employee wanting to move up in a company to also take up these sports.

The other challenge to becoming Indian is that there are many biases and perceptions that have become rooted in society of what it means to be an Indian. These biases do not reflect the reality of how enterprising and adaptive Native Americans are. A brief family history of two tribal

leaders is provided next to highlight how false are our views of Native Americans.

8.2.2.1 THE LIFE OF MIKE as told by MIKE

I am a member of the Colville Confederated Tribes in Washington State. I was born and raised on the Colville Indian Reservation. My mother, Thelma Cleveland Marchand, was a Councilperson for the Colvilles and my maternal grandfather was the tribal Chairman, John Cleveland. They were Wenatchees, one of the 12 tribes placed on Colville. The Wenatchee people had been promised by treaty a 6 mile by 6 mile Wenatchee Reservation at the present townsite of Leavenworth, which is now famous as a faux Bavarian Village popular with tourists. My father, Edward Marchand, was the grandson of the last hereditary Chief Aurapahkin, of the Arrow Lakes people, who also ended up on the Colville Reservation. My dad was a airplane pilot and trained kids to enter into the construction trades. He liked to build and also was in charge of facility management for the 1.4 million acres. I grew up hunting and fishing and gathering foods with my extended families, much as our people have done for thousands of years.

My grandmother Mary Marchand preferred the traditional lifestyle. She followed the fishing and berries and hunting around throughout the year. She preferred living in a tent and camping out under the stars. So I spent a lot of time playing on the rivers and lakes and mountains. She was actually relatively wealthy and had three houses, so living in tents was a lifestyle choice. Both my grandfathers were entrepreneurs. William Marchand ran a ranch, raised champion Hereford cows, operated a small sawmill and supplied ties to the railroad, made boards for houses in the area, and he also worked in silver mines. My other grandfather, John Cleveland, ran a big ranch,

raised alfalfa and loved to race horses. Both ranches were very self sufficient, with big gardens and fruit trees.

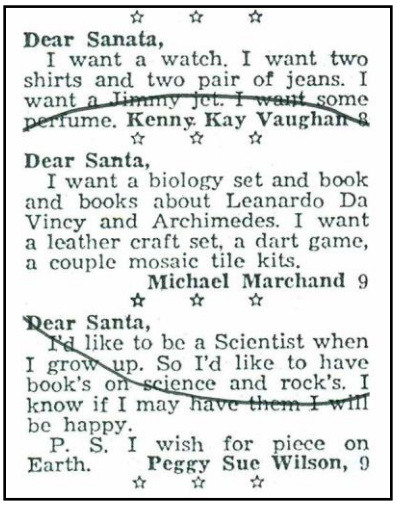
At a young age, the Bureau of Indian Affairs noticed I was getting high 99 percentile test scores and picked me out to go to boarding school (see Box 16). They asked me where I wanted to attend school. I jokingly said send me to the best one in the world. A year later the government came back and handed me tickets to Philips Exeter Academy in New Hampshire.

Box 16. Mike's LETTER TO SANTA CLAUS

he The short clip from the Omak Chronicle published Mike Marchand's letter to Santa Claus when was 9-years-old. In his letter, he asked Santa Claus for books and books on Leonardo Da Vinci and Archimedes.

Already at the age of 9 years, Mike did not follow the western world myth of what the behavior of a child should be when living on a reservation.

Most 9-year-olds, even living off reservation, are not asking Santa Claus for books written about these western world thinkers and artists.



☆ ☆ ☆

Dear Sanata,
I want a watch. I want two shirts and two pair of jeans. I want a Jimmy jet. I want some perfume. **Kenny Kay Vaughan** 8

☆ ☆ ☆

Dear Santa,
I want a biology set and book and books about Leanardo Da Vincy and Archimedes. I want a leather craft set, a dart game, a couple mosaic tile kits.
Michael Marchand 9

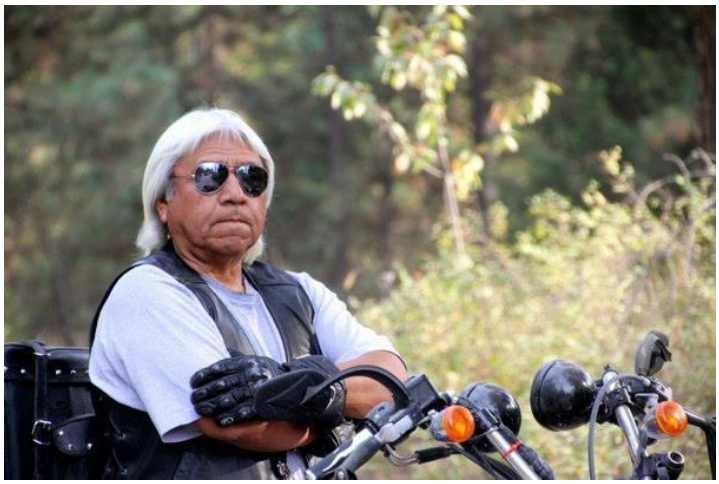
☆ ☆ ☆

Dear Santa,
I'd like to be a Scientist when I grow up. So I'd like to have book's on science and rock's. I know if I may have them I will be happy.
P. S. I wish for piece on Earth. **Peggy Sue Wilson,** 9

☆ ☆ ☆

So I went there and was fascinated with French class and Tudor Stuart English History of all things. While there a life changing experience happened. Some friends came by one weekend, it was Thanksgiving weekend of 1970. I thought we were going to some Thanksgiving Dinner. It turns out we were going to one of the first big Native American protest demonstrations at Plymouth Rock. Dennis Banks and Russel Means of the American Indian Movement were the leaders. Russel was giving

some great speeches, fire from the belly type speeches, about how we need to be sovereign, act sovereign, and get the Bureau of Indian Affairs out of the way. While listening to him I was thinking OK, who is going to be planning and building this new Indian world. I thought I could help do that. So, I went on and studied urban and regional planning and studied business development and economics. I left Exeter and went home, the east coast seemed too distant and irrelevant to my life after that Thanksgiving Day.



In 1970, there was virtually nothing at the Colville Tribe in terms of development. Due to the termination policies, there was only a skeleton crew at the Agency, less than 10 employees. But due to the strong hearts and determination of the Colville people, with help from Indians across the nation, the termination of the Colville Reservation was stopped. The liquidation of billions of dollars in assets by the US was halted. The Klamath Tribe in Oregon was not so lucky. Their lands were terminated. Our tribe was next on the chopping block. But we were able to save ourselves.

I obtained a Bachelor of Arts degree from Eastern Washington University, majoring in Economics and Urban and Regional Planning. I also received a Masters in Urban and Regional Planning from Eastern Washington University. Currently I am a PhD Candidate in Forestry at the University of Washington.

The photo of Mike Marchand characterizes well how today's Indians do not look like what the western European world has fabricated in their minds (Photo of Mike Marchand, member and former leader of the Colville Confederated Tribes; Photo taken in 2012). He is outfitted in motorcycle gear and would have no problem fitting into the western European societies who enjoy riding their motorcycles. But he is also a tribal leader.

8.2.2.2 The life of John McCoy (as recounted by John), a Tulalip Tribal member

Another Indian who is an important western world and Native American leader is John McCoy. His story is given next as well as a recent photo is provided below.

Even though my father had joined the navy before I was born, I was born on the Tulalip reservation. My father served 30 years in the Navy but would spend 30 days of leave each year on the reservation. So I was mainly raised on the west coast since my father's Navy career had him mostly stationed in San Diego, California. When I was in the 2nd grade, my family moved back to the reservation to live so I lived both in San Diego and the reservation.

I graduated from high school in San Diego and then returned to the Tulalip reservation and fished for five months. However fishing requires you to get up at 3 am in the morning and work until 10 pm at night. I decided that there were other jobs that were more suitable for my interests than fishing.

I had always been interested in computers. So I joined the Air Force. After 20 years, I retired in 1981 after accumulating a great deal of training in computer operations and programming. The explosion of computers in the mid-1960s meant that when I retired, I did not have to look for a job and had six companies recruiting me. For my first job, the company I joined had a contract with the White House to automate its computer network. I worked as a computer technician in the White House from 1982 to 1985. I started as a 'grunt' when I first started this job but eventually became the site manager.

Starting in 1992, the economic downturn meant that the company I was working for had to lay of people. Because of my position, I was the person who had to tell people who had become my best friends that they no longer had a job. Again in 1993, I had to lay off more people. Since I did not like this part of the job, I decided to approach the Chair of the Tulalip Tribes to see if the job he had tried to recruit me for in 1992 was still available. This job was the economic development manager for the Tulalip Tribes. Fortunately for me, the job was still available. In

1994 I returned to Tulalip to help bring the community into the digital world and build what is now the Quil Ceda Village Business. In 2000 I became General Manager of the Quil Ceda Village Business Park. After 11 years, I retired from this job in 2011. The story of how I helped Tulalip Tribes develop some of their business enterprises continues later in our book (see 13.3).

My oldest daughter first became involved in politics and worked for Morris Udall for five years. I followed my daughter into politics. I became a state and national leader on diverse, important issues involving broadband, alternative energy and K-12 education. I am also very active with the Native American advisory boards for the National and Snohomish County Boys and Girls clubs.

I represent the 38th Legislative District, which includes the Everett, Marysville and Tulalip communities of Snohomish County. I am also the Chair of the National Caucus of Native American State Legislators. I am an active member of the Environmental Management Roundtable, the Labor and Economic Development Committee, and the Communications, Financial Services & Interstate Commerce Committee for the National Conference of State Legislatures. In the Washington State Legislature, I was the former Chair of the House Technology, Energy, & Communication (TEC) Committee and sit on the House Education Committee and the House State Government and Tribal Affairs Committee.

I have worked on expanding broadband across the state of Washington to get folks connected. I have also pushed to expand Washington's renewable energy portfolio and create incentives for alternative energy, like biomass and solar. I continue to work on making Washington State

greener and run more efficiently. In addition to the environment, energy and development issues occurring at the state level, I work on energy issues that impact tribes as well as the Nation. I am a member of the National Environment Management Roundtable on nuclear spent fuel and also a member of the State Tribal Governmental Working Group on nuclear site cleanup within the U.S. Department of Energy.

A characteristic of both tribal leaders just highlighted is their ability to bridge and work towards consensus on tricky problems. Both have been successful in developing policies that are compatible for tribes and state or federal governments. An important message is that Native Americans do not sit in their reservations and ignore the world that exists outside of these bordered lands. They also think about the impact of their actions on future generations of tribal and non-tribal peoples. They have incorporated the elements of the portfolio for practicing sustainability that has been written in this book. They are perfect examples of tribal leaders who have successfully blended Native American behavior with the western science approach. They are good role models that our portfolio is practical and works!!

8.3 Think slowly and for the 7th generation

This was a merchant who sold pills that had been invented to quench thirst. "You need only swallow one pill a week, and you would feel no need of anything to drink."

"Why are you selling those?" asked the little prince.

"Because they save a tremendous amount of time," said the merchant. "Computations have been made by experts. With these pills, you save fifty-three minutes in every week."

"And what do I do with those fifty-three minutes?"

"Anything you like..."

"As for me," said the little prince to himself, "if I had fifty-three minutes to spend as I liked, I should walk at my leisure toward a spring of fresh water."

~ Antoine de Saint-Exupéry, The Little Prince, 1943 ~

The excerpt from The Little Prince exemplifies the choices that society faces daily. Technology has made it where each one of us can experience nature synthetically and very quickly. This synthetic solution is not acceptable to a Native American. Most indigenous communities will not abandon their pleasures of experiencing life or nature at nature's time and spatial scales. Many in the western world take the pill so that one does not waste time in searching for food or water or an exhilarating experience. This is an easy decision to make since westerners are disconnected from their environment. They are clueless as to where resources are produced and what is needed for nature to continue to deliver ecosystem services.

The tribes have a different concept of time and what you do with your time than Europeans (see 6.0). This view is expressed well in the following Taoist proverb:

No one can see their reflection in running water. It is only in still water that we can see.

Europeans use a linear timeline, which is foreign to most tribes. A 20-year business plan projection is considered long to the typical European or their descendants, but for the tribes 50+ years is more important. Tribes consider anything less to be short-term.

Tribes know which way they are moving but are not as worried about what the end-point is. This could be compared to a 'systems thinker' versus a 'linear thinker' (see Indian Spirituality for more discussion on using more of the left versus right brain to make decisions). When one is mostly a linear thinker, an end-point is identified and one works studiously toward that end-point. This focus places 'blinders' on a person. It limits their ability to recognize the end point is out of reach or when one needs to adapt to new facts. If technology controls ones approach, it is easier to be a linear thinker and to accept that technology will ensure that the right choice was made.

Thinking like a system and being adaptive is extremely hard for most people to practice. You have to accept that you do not have complete knowledge of any problem and will never know enough to make a final decision. Or, there is not enough time to contemplate alternative decisions in the shortness of the decision time.

The urgency of decision-making triggers short term decisions that may misdiagnose the real problem. A recent Wall Street Journal article is revealing to read since it highlights the short attention span of today's western world society (Finn 2012).

Box 17: WESTERN WORLD STORY OF TIME (from Finn 2012)

"Today's signature move is the head swivel. It is the age of look-then-look-away. Our average attention span halved in a decade, from 12 to five minutes, according to a study commissioned by Lloyds TSB Insurance. (And that was in 2008.) We miss almost everything; we text while we walk. What makes a person stand out now is the ability to look and keep looking.

A "museum intervention" is now mandatory at Yale's School of Medicine for all first-year medical students. Called Enhancing Observational Skills, the program asks students to look at and then describe paintings—not Pollocks and Picassos but Victorian pieces, with whole people in them. The aim? To improve diagnostic knack."

Tribes also accept that we do not know all the answers, so the decision process is taken more as small steps. Western European perspectives do not explicitly acknowledge that science is incomplete. Instead expert opinion and sophisticated models are used to support assumptions and the decisions made. Since models are a summarization of our knowledge, it can only be as good as the current knowledge. Despite each model being built using thousands of data point, it will not produce a better decision if data outliers are used or they do not represent the norm. Since only data that are correlated to one another are used, it propagates a linear thinking approach and supports that pre-identified end-points are valid. Western Europeans also recognize that we have accumulated volumes of knowledge in libraries so the foundation of our decisions are based on a solid foundation.

In contrast, the tribal decision process is long-term and protracted. Tribes make decisions for the 7^{th} generation and would not make decisions that decrease their ability to adapt to their environment. Western Europeans make decisions for the short term and allow these decisions to mostly be driven by politics and economics. Tribes make locally based decisions informed by the larger landscape and elders while western world scientists use science generated in other geographic locations to make local decisions.

Western Europeans need to develop a culture that is applicable to a local environment but informed by science collected at distant locations. If they do not change their decision process, the western world will be like weeds that appear to be thriving locally but have converted nature into a novel ecosystem. Since weedy species can dominate in the short-term, it may look like everything is okay but these species are replaced if nature replaces humans as the manager.

8.4 Long scientific history but short human memory

The western European model of credible knowledge is derived and disseminated by University trained researchers and scientists, who collect, research, test, generate hypotheses, and finally filter what knowledge is acceptable and will be used to make decisions. Universities are the repositories of knowledge and educate the next generation of decision-makers. University educational systems are the core 'dispersal mechanism' for knowledge and the repository of 'credible' science in the western world.

The University knowledge base by definition should have strong historical roots. The first University was built more than a thousand years. According to the Guinness Book of World Records, the University of Al-Karaouine in Morocco was founded in 859 CE by a woman. Despite this long history and the countless books written since that time, scientific knowledge in practice may go back a couple of decades, if even that far back in time. It is common knowledge among University professors that a recently published research paper is cited for about five years. Once this time has passed, a science paper is frequently lost from the scientific memory and is no longer referenced by new publications. This happens despite the fact that we have libraries as repositories of books and digital technology that can 'mine' data and provide

information at our finger tips.

The unfortunate repercussion of this short term memory of past scientific research is that past scientific paradigms are rediscovered in the present. These past papers are not referenced for the ideas that they generated but are introduced as new paradigms. This means that's that science repeats itself and scientific knowledge recycles periodically, i.e., it is rediscovered many times. Leading scientists have talked about scavenging old library journals or books to look for new insights to today's pressing problems. These ideas are then re-introduced as new and novel ideas – a great way to build a scientific reputation since the idea has already been tested so failure is unlikely. This approach is justified since today's tools for measuring these phenomenon are more sensitive and able to measure the finer details of any process. However, the core idea has not fundamentally changed.

Even young adults today have less interest in history and begin their world view starting when they were born. While teaching a class two years ago at a premier research University, one of the authors (KV) of this book had a student ask why they needed to know some fact that had occurred before 1978. His view was that only relevant information occurred after his birth date. Since he was born in 1978, his history started on that date. He had no historical vision and really did not see relevance for anything that happened before he became an active 'player' on this world's stage. He asked this question without recognizing that he is what he is because of his family history and beliefs that were probably rooted in stories written a thousand years earlier. In the Introduction to the "The Historian's Craft", written by Marc Block and published posthumously in 1953, Strayer poses the same question about the relevance of history as he

introduces the importance of historians.

> ***"…What is the use of history?" What is the use of history, when the values of the past are being ruthlessly discarded? What is the use of history, when we repeat our old errors over and over again?…"***

Using a coin as an analogy, some see science as being the other face of economics or the other side of the coin. In 1953, Block wrote

> ***"it is undeniable that a science will always seem to us somehow incomplete if it cannot, sooner or later, in one way or another, aid us to live better." He continues, however, …history is not only a science in movement. … but …it struggles to penetrate beneath the mere surface of actions, rejecting not only the temptations of legend and rhetoric, but the still more dangerous modern poisons of routine learning and empiricism parading as common sense."***

Tribes use elders and the historical knowledge they have passed down inter-generationally as a filter in their search for solutions. As JD Tovey mentions later in our book (see 11.5), **tribal elders are equivalent to the Google Search Engines of pre-Columbian knowledge**. In the western European world, historians used to be the reservoirs of knowledge but today historians are asked to comment on past actions of important people or events. It is not uncommon to hear that history will describe someone better than what is possible today because more facts will be revealed as historians are able to study documents from that time. Therefore University professors have great difficulty in adequately responding how to integrate our current decision process into a future time frame. We already have a hard time just understanding the past because so much of the information is fragmentary and winners of battles always write their own history. The history they write will always be flattering and not mention bad decisions that were made.

When institutions of higher education are the gate keepers of knowledge, they can also control what and when knowledge is revealed. Since educators decide what knowledge is taught at schools and Universities, they influence the frameworks and approaches decision-makers think about using to conduct an assessment. They also control what information or facts becomes acceptable knowledge because they are able to either reject or accept papers that they review for publication and select who will receive funding for their research. In the mid-1970s, one of the authors of this book (KV) witnessed how the scientific leaders in a particular discipline blocked attempts by other scientists to publish their ideas since it was counter to what had become the acceptable pillars of knowledge. In this case, these scientists were the leading researchers in their field and had been instrumental in developing what was accepted as the foundational research. Anyone contradicting their research was unable to publish their work. Fortunately this situation is not the norm. But it does happen. It tends to be easy for those identified as the leaders to be able to stifle views counter to theirs.

If history was integrated into our current knowledge, it would reveal the evolving ideas that are the pillars of science. It would be harder for scientists and professional to address complex sustainability problems using too narrow of a perspective. This narrow perspective can be broadened by adopting a historical approach or the decision processes used by Native Americans as part of integrative decision frameworks. The Native Americans, as well as most indigenous communities, do not have the luxury of moving elsewhere if they make bad decisions on their lands. They have to live with their mistakes and accept the negative repercussions of their decisions on the community. The entire community will have to absorb and deal with individual mistakes. This is not a common occurrence in Native American communities since cultural traditions provide feedback that minimizes bad decisions. Since the feedback is immediate to the

individual when he/she made a bad decision for the community, cultural history informs and minimizes that bad decisions will be made. Course correction is possible because there is not a lag between an action and feedback on a bad decision. This feedback is part of the cultural traditions.

In contrast in the western world, a bad decision made by an individual is not absorbed by the community but remains an individual responsibility. If an individual is linked to a bad decision, he/she will be forced to resign and will no longer be employed. The community will not take responsibility for an individual's error. There is also a long lag period between when the decision was made and when recognition occurs that the decision was wrong. This long lag period may also make it difficult to identify a specific action that caused a bad decision. In this case, no one has to take responsibility for the bad decision even though the group will still have to be dealt with its repercussions. Short-term course corrections are also difficult to make due to a lack of historical knowledge at the ecosystem level and how the parts are connected.

People living in cities that are especially isolated from the repercussions of decisions they make. Their group survival is not dependent on the decisions that they do make. Individuals in industrialized countries worry about their carbon footprint today and are struggling with balancing or making the trade-offs between energy demand, climate change, sustainable livelihoods, poverty alleviation and land-uses. These are individual decisions. In most cases, a tremendous amount of scientific information is used to make these decisions but they are not locally based and few impact a community by their individual decision. These individual decisions can be adopted by the global communities but still have no repercussions at the

community level or even at the individual scale. The changes of individuals making a larger impact on their environment are more likely to occur if it became a community decision.

Policy-makers rely on scientists to provide them the historical memory or to place any science in its appropriate context. Policy-makers, however, do not want the historical memory when it slows down the decision-process or it does not support their political views. Depending on your values, science can become a biased venture where only science that supports one's views are presented. This has been especially problematic in the natural resource area when competing demands for what ecosystem services an environment should provide are part of the decision process. In such cases, the easiest solution is to follow your values since it is more comfortable to make decisions framed by what you deem to be acceptable science.

Since human values can drive what information is used to make decisions, individual biases become embedded in the decision process. If one fears forests or large mammals, it will be easy to agree to cut a forest or to kill an animal. Hylophobia or fear of forests is found among many of today's American public (Taylor 1999) so this is not a farfetched idea. A survey of Native Americans who live on a reservation or return frequently home would find few that are afraid of nature and/or forests. Their livelihoods and cultural values mean that they are integrally linked to nature. They are not afraid of the environment that exists outside of the 'human built environment'.

Native Americans have adapted to the western world but retained the inter-generational knowledge essential for making natural resource decisions. JD Tovey recounts how his tribe was

concerned with the loss of intergenerational knowledge after many tribal members no longer lived on the reservation. In this story his grandmother's generation was important for maintaining cultures and traditions.

8.5 Inter-generational adaptation and grandmothers (as told by JD Tovey, Cayuse, Umatilla Tribes)

My grandmother is 3 quarters Cayuse and 1 quarter Joseph Band Nez Perce. I grew up nearly 500 miles away from the Umatilla Indian Reservation, and only visited a handful of times for funerals until my father (her son) became employed at the reservation when I was about 9 years old. For much of my life I was surrounded by the other 3 quarters of my heritage: Welsh descendent Mormon immigrants who settled in southeastern Idaho. The only real window I had into the other 1 quarter of me was my grandmother. My father and his brothers, to no fault of their own, were part of the "Denial" generation of Indian descendants when "being Indian" was associated with the results of 100 years of post-treaty colonization, i.e. poverty, crime, alcoholism, welfare, etc. This "Denial" generation, in my estimation, later became the "Greatest" Generation.

My grandmother told me stories about being a child on the reservation and how many people would discourage their youth to leave for educations, marriage, or other opportunities. These elders, as children, had seen their fathers, mothers, siblings and friends die on battlefields, collapse from exhaustion during forced marches, and were brought up at near starvation on mixtures of government provided taro flour, baking soda, water and salt; now famous as Indian Frybread. These elders saw their way of life destroyed, their lands lost, and their language die.

They didn't want their children and grandchildren to leave for school not because they wanted company in their misery; rather they felt that all they had left were their children. To allow them to leave, in their estimation, would be the final nail in their cultural coffin, because why on the Great Spirit's Earth would these children ever want to come back to this deplorable mess? A few wise elders, however, realized that their children needed to learn, adapt and become part of this greater conquering culture IN ORDER to survive. In my grandmother's estimation, her parents were of this later type.

And so many of my grandmother's generation left, and more of the following generation left. It seemed the fears of the protectionist elders were coming true until something amazing started to happen. These children and especially the grandchildren (The Denial Generation) who had gone off and become lawyers, accountants, doctors, nurses (like my grandmother) and business men (like my father and uncles) and after having successful careers, they began coming home to care for elderly family members or just to be close to loved ones. They brought with them a deeper understanding of the external world and with the lens of their heritage began utilizing this knowledge for the betterment of their community. A few lawyers and businessmen realized the full applicability of the Commerce Clause of the standard treaties, and this lead to the explosive economic development enjoyed and explored by many of the tribes today. This new economic awakening has lead to other awakenings of culture, experience, health and human welfare, and natural resource management that could all be reasserted by utilizing western knowledge *through* a cultural lens. This lens, I believe, will be one of the greatest contributions to management of natural resources indigenous people will make for the future of our planet and race.

For the last 2-300 years western thought has asserted that the management of natural resources be based on economic development (the purely western notion anyway), arguably much to the environment's degradation. But with a traditional and cultural lens applied we can no longer look at natural resource services as isolated economic elements to be maximized and exploited. Granted this is not a novel understanding of natural resource management. Complexity theory and human-coupled models of natural resource management particularly with relation to human understanding has been gaining more and more of a foot hold for nearly 50 years. But there is still something missing from this academic jargon of ever increasingly complex interlaced systems. This is where native notions of natural resource management become relevant.

We have several lenses that need to be combined to become adaptive ecosystem managers. This is practiced by the Iban Tribe in West Kalimantan in Indonesia. Their story is recounted next.

8.6 Cultural diversity the norm in regional landscapes: Iban tribe, Indonesian Borneo

Iban tribe is one of many different Indigenous groups of Borneo. They live in northwest part of Kalimantan (Indonesian Borneo) and the southwest of Malaysian Borneo. Indigenous groups of Indonesian Borneo have been homogenized as the Dayak tribe. The term Dayak actually represents the term that refers to different tribes and sub-tribes in Kalimantan. This term was coined during the Dutch colonial administration to distinguish those ethnic groups from the Moslem ethnic groups who mostly lived in coastal areas of Kalimantan. According to one of Dayak activists John Bamba, the Dayak people initially did not identify themselves with this term as they called themselves by the names of their own tribes and sub-tribes (noted in an

online bulletin Perspektif Baru, Edition 601, September 2007). Hundreds of Dayak tribes and sub tribes each have their own names such as the Iban, Kayan, Kenyah, Jalai, Kanayan, and so on. See Selato (2002) for detailed examination of the Dayak.

One of the homelands of the Iban People in Kalimantan is the Sei Utik customary area, which is a customary village located in Embaloh Hulu sub-district, Kapuas Hulu district, West Kalimantan Province, Indonesia. Sei Utik borders with Sarawak in the north, with East Kalimantan province in the east, and with Sintang district of West Kalimantan Province in the west. Sei Utik is part of the Jalai Lintang customary area (ketemenggungan). Other parts of this customary area are customary villages namely Lauk Rugun, Mungguk, Pulan, Kulan, Apan (Langgan Baru), Ungak, and Sungai Tebelian. According to the government administration system, these villages are incorporated into the village of River Utik (Menua Sei Utik).

In Sei Utik, the Ibans live in a wooden long house (see photos on left). This long house has four main parts. The first part is the individual house that looks like an apartment unit. There are around 25 units of individual houses in this long house. The second part of the long house is the long hall located in front of the front doors of the individual houses. This long hall is a communal area where the Ibans of Sei Utik do individual, familial and communal activities such as weaving baskets, storytelling, town hall meeting, gathering, etc. Certain parts of this long hall are also used to put tall baskets that are full of non-timber forest products. The third part of the long house is the long porch, which is usually used for gathering of certain groups such as women and children, and for keeping agricultural tools and other tools. The fourth part of the long house is a communal “yard” that is usually used to dry paddy from dry fields and other

products from their swidden agriculture.

Photo. (top left) Long House, (top right) The Communal Hall, (bottom left) Community gathering at the Communal Hall and (bottom right) Communal Porch of Iban Tribe in Sei Utik, West Kalimantan, Indonesia (Photos: Mia Siscawati 2010)

Most Iban's households in Sei Utik make a living from a variety of activities where natural resources play critical roles. Swidden agriculture activities - including dry-field (umai pantai) and wet-rice (umai payak) farming as well as rubber garden and mixed trees gardens - serve as sources of food, traditional medicines, daily cash (especially from tapping and selling their rubber trees), and a combination of mid-term and long-term savings (from annual harvest of tembawang, rattan, and fruits). Sei Utik community maintain customary rituals that connect the relationships between people, e.g., covering birth, marriage, and death as well as the relationship between people and nature.

Sei Utik has served as a place where a number of NGOs, activists, and progressive academicians learn about the application of community-based forest system (sistem hutan kerakyatan/SHK), including how this system develops and operates under customary laws. The learning process also includes the topics of customary spatial arrangement and complex tenure system, covering a variety of concepts of tree tenure and land tenure. Besides serving as a learning site on SHK, Sei Utik has also served as a site of collaborative community organizings where NGOs and Indigenous Peoples Organizations (IPOs) have been working together with Sei Utik community to address external pressures that threaten Sei Utik's forests and the whole of Sei Utik's customary territory. The external pressures include illegal logging, financed by Malaysian entrepreneurs from across the border, and oil palm plantations planned under the Indonesian-Malaysian border mega-project. These have the potential to devastate the people of Sei Utik's forests and livelihoods (Down to Earth 2006). According to Pak Janggut (Chairman of the Iban tribe in Sei Utik), "the biggest problem is to prevent the forest area to be converted into Industrial Plantation Forest area or Palm oil plantation area."

Responding to above external threats, the Iban community in Sei Utik, together with several local groups (PPSHK, LBBT, Pancur Kasih) have developed various initiatives and alternatives to defend the forests. The initiatives developed in Sei Utik with these supporting groups include (Down to Earth, 2006):

- a Credit Union developed with Pancur Kasih to strengthen the local economy and reduce internal pressures on the customary forests;
- an initiative developed with LBBT to build and strengthen the political position of the Sei Utik Iban community. A study to identify their customary/ancestral rights (hak ulayat) has been done. This has provided material for drafting a Perda (local government regulation) which recognizes the existence of the Sei Utik community and their customary area; and
- participatory community mapping process and participatory planning process of the Sei Utik's forests facilitated by PPSHK Kalbar.

The Ibans use cultural values to decide what and how to use resources. Certain tree species are used as construction materials to build boats and fire-wood despite the fact that these tree species are high valued and easily sold in international markets. The Sei Utik forest has an abundance and diversity of timber species so timber scarcity is not part of the decision process. The Sei Utik forests are rich in biodiversity and provide the community with timber as well as many non-timber products. The dominant tree species are meranti (*Shorea* spp.) and kapur (*Dryobalanops* spp.). Other tree species found in this forest are ladan, gerunggang (*Cratoxylum* spp.), kempas (*Koompassia* spp.), and jelutung (*Dyera* spp.).

The total forest area managed by customary community of Sei Utik is 9452.5 ha. This area is divided into four categories of land-use:

1) Kampong Taroh (Protected Forest) covering 3667.2 ha;
2) Kampong Galao (Forest Reserves) covering 1510.7 ha;
3) Kampong Embor Kerja (production forest) covering 1596 ha; and

4) The remaining land area is managed for agriculture and other purposes (2678.5 ha).

The entire allotment of forest land is under the customary rules of the Iban of Sei Utik village. The Sungai Utik customary forest area has been "successful" in acquiring several forms of recognition for how well they have managed their resources. One form of recognition was the certification label for their "sustainably managed forest" through the Indonesian Ecolabelling Institute's special certification scheme for customary forests. The external pressures that Apai Janggut shared with one of the authors of this book (MS) in 1999 were still threatening Sei Utik at that time. Apai Janggut noted that, "the biggest problem is to prevent the forest area to be converted into Industrial Plantation Forest area or Palm oil plantation area."

9 Portfolio Element #3. Follow a Native American business model

Only after the last tree has been cut down,
Only after the last river has been poisoned,
Only after the last fish has been caught,
Only then will you find money cannot be eaten.

~ Cree Prophecy - //www.stevenredhead.com/Native/ ~

9.1 Company Business Plans or Village Economics

There are a number of differences between a Native American run enterprise and European style undertaking:

- All Native American business plans are designed to take into consideration the life and livelihood of 7 generations beyond those individuals making the decisions;
- Since most of the undertakings are within the boundaries of tribal lands, they will live with the decisions they make, both good and bad, on a daily basis;
- Conserving their way of life and the environment for the future is more important than having financial gain now.

Native American's don't produce a 'sales pitch' to investors and expect them to provide not only all the financing but to totally shoulder the risks alone. The tribe shoulder's the risks with any business venture that they decide to develop.

When economics is the only factor that determines how societies interconnect with nature, controlling and dominating nature is a very well developed practice. Historically economics has been the dominant western world tool to make decisions on what, how and where to collect natural resources. For a business to increase its economic returns from nature, you need to own nature and be able to build walls around your resource. This means that our sense of property rights and ownership is well developed since we need to ensure that the revenue returns to the 'owners' of the resource. If you own nature, you will also feel that you have a right to do whatever you want to with your piece of nature. Native Americans do not own nature in contrast to the western world view where lands are bought and passed down through inheritances to a successive list of owners. Nature is communally owned and not owned by an individually for Native Americans.

It is worthwhile exploring in greater detail the differences between non-tribal and tribal business plans since this is a fundamental difference between American tribes and western world businesses.

9.1.1 Non-tribal business plans

The majority of the companies in the world today first develop a business plan when they start a new economic venture or rebuild an existing business. The business plan lets the managers know whether their venture is too costly or where the revenues would balance the costs. It could have been written on the back of an envelope or written by an MBA working for a firm that specializes in this type of work. Perhaps the business plan came from the numerous sites available on the internet that offers the form of pre-packaged business plans. The latter approach provides a generic or one size fits all business plans.

Business plans usually include all sorts of details. It typically describes the company, its founder, what product will the industry produce, who are the competitors for producing or selling a product, what are the future global trends for people wanting to consume this product or product demand, and where does the company presently sits within that industry and how the company will tailor its actions to meet those goals. In addition this business plan usually provides a company balance sheet with financial details and the internal rate of return if a new piece of machinery is to be manufactured, a management structure, and an executive summary.

A business plan is defined as an essential roadmap for a company to evaluate its success potential and to identify risks that could derail this business venture. A business plan usually is a 3 to 5 year plan that outlines what avenue the company intends to follow to grow its revenue. This is a living document that changes depending on the circumstances and outside forces that the company has no control over. Most business plans are developed when a company wants to

request funds or loans from some type of financial lending institution or investor groups.

As mentioned earlier a business plan is a living document that quite often is drastically changed by the time it is implemented. With the fast paced movement of global markets and communication networks today, in reality a Chief Executive Officers (CEO) is seldom able to plan for the long term. The responsibilities of a CEO are set by the Board of Directors of the organization with some companies giving CEOs broad latitude to run the company while others have more direct over-sight by the Board of Directors. Ultimately, the CEO has to perform according to the expectations of the board and its stockowners if they expect to retain their position. If a company's quarterly profits are lower than what was expected, a CEO has to respond to the Board members and stockholders and pursue some sort of corrective action. Repeated lackluster business profits can cost a CEO his or her position. CEOs losing their jobs are not an uncommon event reported in the business section of newspapers or magazines.

To maintain their high paying jobs each company CEO must make certain that short term profits show up on the bottom line, even if it means that the company will be economically worse off in a few years. Long-term strategies that may strengthen the company, but not provide dividends for stockholders, are rarely undertaken and if they are it is only after lengthy conversations and consulting with the Board of Directors, and perhaps the stockholders.

On some occasions stockholders can get involved and vote to remove members of the Board if they feel that the direction the company is not correct. In addition, CEOs much keep in mind that stock analysts report their opinion on the value of a stock every quarter. Their attitudes

regarding the value of a stock can have grave consequences for the dollar value at which the stock sells on the stock market. It also means that short term financial decisions are made for the short term or quarterly goals are the norm and long term goals are the exception.

The business decisions made by some CEO's are based on how long they plan to stay with this particular company before they move to a more financially rewarding situation. To get one of these better positions they need to make certain that their present company looks good on paper no matter what problems their previous decisions have created for the near future of their present company. Whatever damage they have done to the company will have to be corrected by the next CEO. Since they don't have to live with the problem they aren't going to be held accountable for their decisions. However, before most CEO's start working for any company they have a contract written up that provides for them in the case something goes wrong with their management of the company. These are called "Golden Parachutes", and they make certain that there is no financial hardship experienced by the CEO if he/she financial hurts or bankrupts the company while they are in charge.

How business plans are written and economic development pursued makes it appear to be a simplistic process. It is not. Marglin (2009) describes how economists assess how to stabilize global carbon levels. He wrote

> ***"…key determinant of the merit of any investment project…is the rate of interest "charged" on upfront costs incurred to provide future benefits…Much hinges on the choice of interest rate…lower the rate, the more attractive the prospect of preventing global warming…only problem is…analysis misses the point The important issues are not intertemporal…but inter-regional…likely impact of global warming…different in the rich countries, situated for the most part in the temperate North, than in the tropical and subtropical South…"…"..the most salient feature of the global-warming***

> ***debate is, in the end, how little we know. Probabilistic models shed some light on the future, but quantification breaks down in the face of the overwhelming uncertainty about the effect of the economy on greenhouse-gas emissions on global warming; and, finally to complete the circle, the effect of global warming on economic activity…Given the uncertainty, it makes little sense to rely on a sophisticated calculation of the present value of benefits and costs…"***

The take home message from Marglin (2009) is that inter-regional impacts and a lack of knowledge in the area needed to make economic decisions make it difficult to use economic tools to prevent global warming. This does not mean that one does not strategize to mitigate global warming but it should not be totally based on economic assessments. The approach used today makes it appear that the assumptions being used in the economic analyses are well grounded scientifically when they are in fact not so.

How business decisions are made without considering its social and environmental externalities is clear from how the world builds infrastructures and economic enterprises to control fresh water resource supplies. The extent to which global societies built large infrastructures to control water supplies is extraordinary. According to the US EPA, about 90% of fresh water flows are altered or impacted by dams, reservoirs, diversions and irrigation withdrawals (Jackson et al. 2001). In the past governments were able to justify the large water (Gleick et al. 2002)

> ***"infrastructure built and operated by governments ...vital for national security, economic prosperity, and agricultural survival."***

This ability to build large scale infrastructures, and the technology to manage the distribution of water any place in the world, is stimulating the privatization and globalization of fresh water supplies (Gleick et al. 2002). As written by Gleick et al. (2002) in their introduction:

> ***"Prices have been set for water previously provided for free. Private companies have been invited to take over the management, operation, and sometimes even the ownership of public water systems. Commercial trade in bottled water has boomed. International development agencies that used to work with governments to improve water services are now pushing privatization efforts. Proposals have been floated to transfer fresh water in bulk across international borders and even across oceans…***
>
> ***However, there is little doubt that the headlong rush toward private markets has failed to address some of the most important issues and concerns about water. In particular, water has vital social, cultural, and ecological roles to play that cannot be protected by purely market forces."***

Problems arise when water resources are privatized and the costs and benefits are not equitably distributed or become a commodity traded in global markets. Water is tricky to privatize since the source of water is vulnerable to climate change. Lands with abundant water may have scarcity of water with climate change. The Medieval Period drought has been linked to the collapse of the Maya civilization (de Blij 2005). Just because you have abundant water today does not mean that you will have it in the future. Water is temporarily owned by a group of people. Even though humans build large infra-structures, i.e., dams, to control and deliver water to those that live many kilometers from the dam itself, fresh water supplies are not guaranteed and humans do not own it forever.

Tribes do not assess a problem and make decisions where the production, benefits and impacts are disconnected from one another. Western European perspective continues in most cases to make decisions where society pays for the social and environmental externalities instead of the producers of the product. Tribes accept the fact that identified solutions to problems are not static and should continue to change. According to tribes there is no finite end point. This contrasts the western European approach where a solution to a problem is identified and it is difficult to change the solution or to determine that it is the correct solution.

9.1.2 Tribal business plans

On the reverse side of this is the "business plan" of a Native American tribe when they are either running a company or managing their tribe's resources. Using traditional knowledge focuses tribes on not seeing any problem as unchanging since elders have stories of how solutions have changed with time. Furthermore since the production and consumer are not disconnected in the tribal view, simple solutions are not the norm. For example, tribes working on solutions to dams do not focus on the problems particular to the dam itself. This will not solve the original problems developed by the dam which is a lack of jobs and loss of traditional livelihood jobs. The western Europeans did not factor in the economic impacts of building dams on the tribes. Not only was there a loss of cultural resources but it did not make any business sense if the goal is sustainable development. This was not a Native American business model.

Miller (2012) wrote in his book entitled "Reservation Capitalism" how many American tribes have been spectacularly successful with their business ventures despite making business decisions that are not solely economically based. He also wrote that some tribes have failed in developing their business ventures. What is interesting is that there are many examples of successful business ventures that can be found in the tribal communities. Miller (2012) describes well all the business ventures in timber, minerals, land leasing, manufacturing, agriculture, ranching, and grazing; government administration; tourism; fishing; water; and housing to name a few. There are many examples of how rich the economic development opportunities are that have been pursued by multiple tribes. They have built their business enterprises following the strong history of engagement in business ventures before the arrival of the western European

colonialists. Miller (2012) wrote

> ***"..Some tribes today are among the leading employers in their states, such as the Mississippi Choctaw, or in their regions, like the Confederated Tribes of the Warm Springs Reservation in central Oregon, and the Confederated Tribes of the Umatilla Indian Reservation in northeastern Oregon…"***

According to the Harvard Business School, successful tribal businesses that develop have certain metrics that they have to satisfy to have the tribal community accept pursuing particular business ventures. Key elements of successful tribal economic development according to the Harvard Project's assessment of over 100 tribal businesses are (Miller 2012):

- ***"First, tribal governments have to exercise their sovereignty…control and make their own decisions about what businesses to create and operate on reservations, how tribal natural resources…will be developed,…how businesses will be structured and what their missions will be…***
- ***..tribal governments need to develop strong institutions to assist and regulate business development…ensure the rule of law in Indian Country…tribal governments give people more procedural protections than do other governments…***
- ***…cultural issues are very important…Few tribal cultures and reservation populations…support businesses that are antithetical to their core beliefs and institutions..."***

The Harvard Project identified the key factors that make tribal businesses successful. At the top is the importance of culture as determining the decisions made by tribes. Culture cannot be ignored. There are many examples of tribes not moving forward on a lucrative business venture because of the risk it posed to cultural resources. Culture is not a negotiable item for any business deal.

In addition to the factors already mentioned by the Harvard Project, which resources to harvest and what business decisions are acceptable have to satisfy several other metrics before tribes are willing to agree to collaborate on or adopt a project. Colleen Cawston (former Chair of the

Confederated Tribes of the Colville) summarized these factors eloquently to a University of Washington class four years ago. She mentioned:

- Maintaining and restoring tribal languages – languages are the manner in which tribal members link to nature and central to their culture so any decision cannot impact tribal languages.
- **It is also very important for tribes to make their own business decisions, i.e., maintain their sovereign rights.** An ability to maintain sovereign rights is logical considering how the tribes have been mistreated and their rights, lands and resources taken away from them.
- Not mentioned by the Harvard Project, but just as critical for a tribal business venture, is the importance of **not losing any land as part of the business venture**.
- Another factor, just mentioned when talking about culture, is that some **items or resources are not negotiable and will not be traded during a business venture**. All of these key characteristics found with successful tribal businesses are not common elements of successful business ventures found by western world business entrepreneurs.

It has not been easy for tribes to develop their economies considering all the efforts to take their lands and resources, and treaty controls and oversight on tribes to develop their economies. The traditional economic activities were until quite recently based on only the resources located on reservation lands. The reservoir is a major barrier to travel and developing tribal economies. For example, the Colville reservation is isolated because of the building of the Grand Coulee Dam. The dam is about 241 km long and is a mile wide in places. The reservation is now cut off and there is not even a bridge to get across for lands above the Grand Coulee Dam. This makes developing an economy to replace the salmon economy virtually impossible now for the majority of lands on the Colville Reservation. There are two ferry boats to handle small amounts of car traffic but they are not suited for large volume commercial truck traffic. So this eliminates most types of potential business development and so unemployment remains high and future prospects are not good either.

Ferry County, located on the upper portions of the reservoirs remains the poorest County in the state of Washington today, with high unemployment and few economic prospects. The region remains one of the poorest in the country, almost 60 years after the dam was constructed. Despite some progress in developing business, unemployment of the Colville Tribe is still high and all socioeconomic indicators show a dismal state of affairs for its people today. Since the 1970's, when federal attempts to abolish the tribe and terminate its entire existence ceased, the tribe has been steadily developing new businesses. Despite this, tribes are emerging as important economic players in the US. The Confederated Tribes of the Colville was ranked as the number 18 business in the State of Washington in a recent Washington CEO magazine listing. But the tribe still has a long ways to go to achieve parity with the NW economies.

Tribes developing their business enterprises have also had to contend with mismanagement and robbery of their resources by the government agency set up to provide trustee oversight on tribal resources. The Bush Administration appointed a man named Steven Griles to serve as the Deputy Assistant to the Secretary of Interior, the number two federal trustee over Indian resources and their development, only being superseded by the Secretary of Interior and President. He formerly worked for the coal companies and was involved in getting tribes into some bad contacts with the coal companies. He was recently sent to prison for unethical and criminal acts related to his duties as Indian trustee in matter related to gaming in June of 2007 (Indianz 2007). Tribal lands are under the purview of the US who acts in a trustee role but many examples exist of the government benefitting from tribal resources and little returning back to the tribes whose lands the resources were collected.

It is ironical that reservation lands are rich in resources today. When tribes were originally forced onto to reservation lands, the federal government did not realize that abundant and valuable resources are located on these lands. They were considered to be wastelands and of no use to American settlers moving into these regions. This will be briefly described in the next section.

9.1.3 Reservation lands historically undesirable but rich in economic resources today

In the past, resources were taken from tribal lands without tribes having any input of whether this would not happen nor were they compensated for the resources that were taken. Energy was critical for the emerging post World War I economy of the United States. Tribes were often displaced and their lands confiscated when they owned resources that were needed by growing economies. Tribes were forced onto reservations, often times on lands deemed undesirable at the time, but it turns out that many of these reservations contained valuable resources of coal, gas, oil, timber, water, and valuable minerals. Energy continues to be a valuable resource and many Native American tribes are sitting on valuable energy resources that the US and other countries need.

Even today, after lands have been greatly diminished by federal government actions, tribes still retain many valuable resources which could become very important to the future of the US economy. For example, Indians own 30% of the strippable low-sulfur coals west of the Mississippi River. Indians own 50-60% of the uranium resources in the US. Indians have 5% of

the country's oil and gas reserves (Wilkins 2007). Tribes also own significant stands of timber, with a standing inventory of 0.1 billion cubic m and an allowable harvest of 1.9 million cubic m (Rigdon 2007).

However, as rich tribal reservation resources became known, this in turn sometimes meant even further land thefts by order of Congress. As an example, the Colville Reservation was created in 1871 but gold was discovered in the same year and congress confiscated these lands known as the North Half of the Colville Reservation and compensated the Colville Tribes at a rate of $1 per 0.4 ha for the taken lands. Similarly, gold was also discovered in the Black Hills of South Dakota and the same story was repeated in other parts of the country for various resources, including farm lands and for urban area encroachments. In order to expedite access to these resources, traditional tribal governments were by and large replaced by elected governments with the power to enter into contracts by the Indian Reorganization Act of 1934. Prior to this, many traditional leaders of tribes maintained that resources were not commodities to be bought and sold, it would be akin to selling your mother.

Tribal lands were sought for homelands and for farms and also for minerals and energy resources for incoming settlers. Pressure was put on the Congress to open up reservation lands for non-Indian acquisition. Tribes east of the Mississippi River were relocated to the Oklahoma Territory only to be further displaced when the oil corporations of the US wanted access to the rich oil fields. Similar stories played out in the coal deposits of the Southwest and Great Plains. The Bureau of Indian Affairs did not believe tribes to be capable of developing their own resources. Their solution was to adopt a lease policy, to let resource companies come in and lease Indian

lands and tribes would get a royalty for their resources. Whether this policy was well intentioned or not is debatable, but the results are not. There was a wholesale exploitation of tribal resources and tribes saw little benefit. This exploitation still takes place.

As American tribes are developing their resources and accelerating the rate of developing their economies, the western world is transitioning towards a more Native American business model. The western world dialogue does not mention that they are implementing a Indian business model. But societal demand for including other factors, e.g., societal and environmental factors, when making business decisions is forcing a radical change in how business decisions are made. Western world business models have a long way to go before they are similar to the American Indian business model but they are on this trajectory. This will be briefly discussed next.

9.2 Western world moving towards humanizing business practices

9.2.1 Historical recognition of need to humanize economics

It has been accepted that business models based on economic tools alone are problematic. These discussions are not new and have been heard for many decades. Even historians like Marc Block, wrote "The Historian's Craft",

> ***"…he never made the mistake of assuming that economic factors explain all human behavior. He knew that man is not entirely rational, that society is held together as much by beliefs and customs as by economic interests."***

Many Nobel prizes have been awarded to economists for their innovative breakthrough in how include human behavior and to better predict humans in economic models. Despite all this time, writers still write about the need to humanize economics. It seems that we have not successfully

achieved this goal. We still have a long way to go to reach this goal. Perhaps economic models will never be able to predict human behavior. Perhaps this is not a failure since this is but one of the suite of tools that we should be using to make decisions. If a 'perfect' economic but since this is the tool so commonly used in business, there is a need to

Despite wide consensus on economics not being the only tool to make resource decisions, this is still the common tool used today. However, economic development is a pathway forward to remove economics as being the primary tool to make business decisions. Economics and economic development are different and require the input of different information. The excerpt from Schumacher (1975) describes the differences between economics versus economic development:

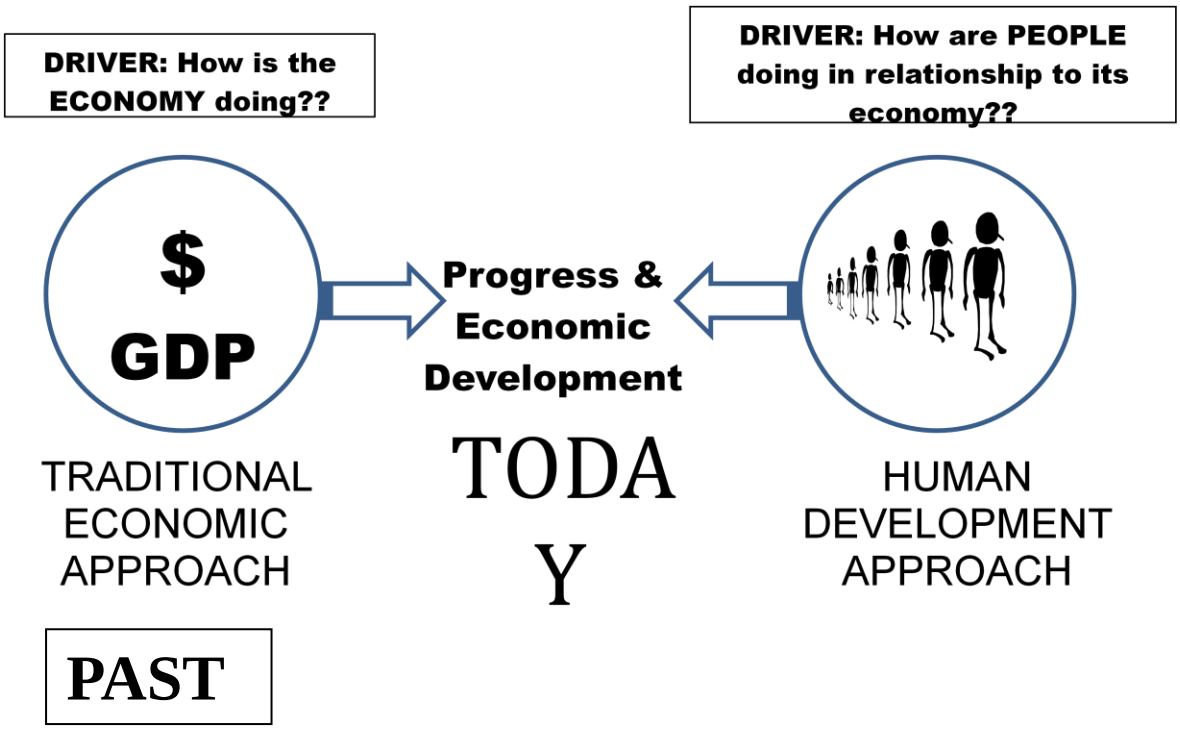
> ***"Economic development is something much wider and deeper than economics, let alone econometrics. Its roots lie outside the economic sphere, in education, organization, discipline and, beyond that, in political independence and a national consciousness of self-reliance. It cannot be "produced" by skilful grafting operations carried out by foreign technicians or an indigenous élite that has lost contact with the ordinary people. It can succeed only if it is carried forward as a broad, popular "movement of reconstruction" with primary emphasis on the full utilization of the drive, enthusiasm, intelligence, and labour power of everyone. Success cannot be obtained by some form of magic produced by scientists, technicians, or economic planners. It can come only through a process of growth involving the education, organization, and discipline of the whole population. Anything less than this must end in failure."***

9.2.2 Human Development Index rankings

Western society business leaders want to make better societal and environmental choices. But how do you make better choices in an environment where scarcity is real and equitable business

decisions have not been the norm? The recent answer to this problem is to include human development as part of evaluation of a countries economic development potential. This evaluation is used to determine who which country would receive international aid to develop their economies. The Human Development Index (HDI) ranks countries for a variety of resources and economic status, or educational opportunities.

The following diagram depicts how the metrics have changed that is used by the western world to evaluate countries for their development potential (adapted from //www.measureofamerica.org/human-development). The past western world metric was mostly an economic approach. An economic approach does not ask questions such as how are people doing or if they were becoming less resilient or more vulnerable to climate change due to environmental or social change.



Why is the Human Development Index important to know? If a country has a high HDI it suggests that it increases the human ability to adapt to change (Vogt et al. 2010). Sustainability in this case means not reducing our choices to adapt to change or disturbances. This is the goal of our portfolio of tools based on Native American principles.

Today Europeans are attempting to include human development (e.g., education, health, and economics) as part of natural resource decisions. How commonly it is used in the economic development process is difficult to say. It is a way of indexing countries to determine who should receive international funds but is not at the table when business leaders make their final decisions. The components of the HDI are essential parts of tribal business models but tribes also include many other factors that make their business model unique.

It is not easy to include humans in any human development index since it needs to include a rationale behavior for how resources are consumed in our economies. It has been difficult to balance development with societies since people's behavior is complex and messy. People do not like to follow economic principles even those articulated by world renowned economists. As Vogt et al. (2010) summarized in their book,

> ***"Krugman (2009) stated that "economists fell back in love with the old, idealized vision of an economy in which rational individuals interact in perfect markets, this time gussied up with fancy equations." The key words are "rational individuals" and "fancy equations." He further stated that economists will have to "acknowledge the importance of irrational and often unpredictable behavior, face up to the often idiosyncratic imperfections of markets and accept that an elegant economic "theory of everything is a long way off.""***

Each person has a hard time accepting the economy of scale that underlies economic decisions today. According to this concept, it is always cheaper to produce a product if the facility can be made larger. This concept works well if one is located at a large industrial complex where it is cheaper to transport the items needed to produce the product. When the business is rural-based and based on consuming natural resources, e.g., timber, transportation beyond a 100 km radius from the facility is not a viable economic option. A larger scale centralized facility is less amenable to supplying rural resources since the supply side becomes a barrier. Many large scale wood biomass facilities have gone out of business because of not being able to maintain a dependable supply of biomass. The larger facilities also have a larger energy and environmental footprint that society is less willing to accept today. So the economy of scale and its impact need to be reconsidered. This is where the American Indian business model may help since it explicitly does not include everything as being negotiable. Culture is not negotiable in any business venture.

The economy of scale of energy production and economics driving decisions is exemplified in the story from Iceland. It suggests repercussions that can occur when the focus of business development does not factor in society and its culture into the decision process. It also shows the extent that voices raised against economic development decisions made centrally are not welcome by the decision-makers. Since this is a story that occurred during the last few years, it also shows how dominant economic solutions in most western world countries. Read this story next.

9.3 How the energy intensive business model made the environment and people of Iceland less resilient (as told by Raga)

Eighty five percent of the primary energy in Iceland is derived from hydropower and geothermal resources (/media/orkutolur/frumorkunotkun-1940-2011.xls). The dependence of Icelanders on fossil fuels is lower than for other developed countries, giving the country a reputation of being a model state of environmental friendliness and being a good example on how the world can combat global warming by using green renewable energy sources. Iceland has, furthermore, earned a reputation of having near unlimited sources of green harness able energy, waiting to be exploited by energy intensive industry, to lower the overall emissions of greenhouse gasses from the industry on a global scale (REF). The development of such industry in Iceland has been very fast, but the policy to promote such industry can be traced back to the 1960´s. Despite having received this international recognition as the green energy island, no environmental issue has received comparable attention in Iceland. The nature conservation and environmental communities have focused most of their efforts for the last 50 years or so to put constraints on

Iceland‘s quest to harness the islands energy resources, and have questioned the size of the harness able energy resources. It is an interesting paradox how an environmental solution envisioned by the global environmental community is envisioned as the largest environmental threat in Iceland by its local counterpart.

Low costs of green energy from geothermal and hydro-resources (e.g., Iceland Energy Marketing Unit 1997; KPMG, 2002), along with low acquisition costs of land, have made Iceland a very attractive place for the aluminum smelters and other energy intensive industry (the website of the Invest in Iceland Agency (www.invest.is/Investment-Opportunities/Energy-intensive/). Sustainability of energy development in Iceland and the trade-offs between conservation and ecosystem resilience need to be examined if Iceland’s energy production is to be assessed as being sustainable.

Development of energy-intensive industry (EII) in Iceland began in the latter part of the 1960’s, after the parliament formed a committee to negotiate with potential international partners to encourage investments in Iceland using its vast energy resources. The first aluminum company, with a 33-thousand-ton production capacity, and the first large-scale power station (Burfell, southern Iceland) began operations in 1969. The prime objectives of the EII policy were to use Iceland´s natural resources to stimulate the development of jobs and economic growth, and to diversify their overreliance on the fishing industry. Around 1990, Icelandic politicians started a vigorous campaign to promote industrialization for the good of the country and to mitigate climate change. The economically and environmentally benign energy potential of the country was reported to be 30 TWh/yr for hydro-power and 20 TWh/yr for geothermal energy by the

ministry of industry (Althingi [Parliament of Iceland] (1993) Report 1195 http://www.althingi.is/altext/116/s/1195.html, accessed 8/15/2009). These estimated numbers have been used widely since then despite being subjected to increasing criticism by both academia and environmental groups. According to the report only 10% of that energy potential would be consumed by the year 2015, unless energy is exported to Europe or sold to new energy demanding industries operating in Iceland. The Icelandic government repeatedly advertised that Iceland has limitless renewable energy resources, low energy and land prices and plentiful clean groundwater, along with political stability and a low-paid, well-educated labor force (e.g. Icelandic Energy Marketing Unit, 1997; KPMG, 2002).

At the same time increasing global concern of human impacts on global climate change, Iceland was admired for producing most of its heat and power from geothermal and hydro-power energy. For example, Iceland has been mentioned by many world leaders, including Al Gore (in April, 2008), as well as the editor of Newsweek (Jon Meacham, The Editor´s Desk, Newsweek April 14, 2008). In a Newsweek article in May 2008, a reporter named Geir Haarde, the prime minister of Iceland, as the "World's greenest political leader." Alcoa's Jake Siewart told the reporter, "It's almost the ideal place to invest, because of the combination of a highly skilled work force, an open and transparent democracy and the endless supplies of renewable energy." The EII policy for the last 20 years has been an economic development focus without the inclusion of ecosystem and social services delivered by the Icelandic landscape. This focus and the debates will continue because the environmental movement receives little public financial support to focus attention on understanding other factors that need to be understood if the trade-offs are to be sustainable. For example, less than 10 million Icelandic kronur (US$80,000 as of

13 August, 2008) is the combined sum spent by the environmental and nature conservancy groups in Iceland while the public power companies pay several hundred million Kr to portray their point of view on how 'green' is their energy production. What is viewed by some as green energy to be harnessed for the preservation of the world's climate and enrichment of people is viewed by others to be a catastrophic destruction of pristine areas with high ecological and geodiverse conservation value. These differences in views are not likely to be settled soon since the conflicts of the past decade have reduced the trust between stakeholder groups. In fact, direct hostility has increased recently because of the Karahnjukar project and the building of a smelter in eastern Iceland (Gudmundur á Vadi, personal communication; Swan, 2004).

The people residing by the river Thjorsa in Southern Iceland have for several generations battled the National Power Company and the government of Iceland for the protection of the river and its treasures. Their quest started in the 1960s when large scale reservoir was proposed in the highland oasis of Thjorsarver, from where the river itself originates to a large degree. The 45 year long vigilance of the people of the community has fractured the community and decreased the quality of life of its people (Ogmundardottir, 2011).

Similar story can be told about the people of Lake Myvatn, a wetland area of international importance in Northern Iceland, and the first designated Ramsar site in the country. In august 1970 the community of Lake Myvatn managed to halt a large scale hydro power development in its system when they removed a dam in one of the river outlets of the lake by using dynamite. In the early 1980s a geothermal power station Krafla started operating in the area of the Lake, with the power capacity of 60 MW. A small power plant of 3.2 MW has been operating in Bjarnaflag,

in 3 km distance from the Lake since 1969. This limited power production has likely already polluted groundwater in fissures between the lake and the power station. These fissures have been popular by locals and tourists for natural hot springs and used for bathing. Recently, the water turned color, from clear into turbid. A master plan for hydro and geothermal energy resources in Iceland, which is being voted on by the Icelandic government in the winter of 2012-2013, proposes an increase of 265 MW power stations in the area, at the Krafla and Bjarnaflag locations. The fragile lake ecosystem has been suggested to be in peril by some of the largest NGO's in Iceland. In September 2012, Landvernd, the Icelandic Environmental Association, and Fuglavernd, BirdLife Iceland, called the attention of the Ramsar Secretariat to the development and a proposed construction of a new power plant in 3 km distance from Lake Myvatn. The lake was designated as a Ramsar site in 1977, the first site in Iceland to be listed. The NGO's urge the Ramsar Secretariat to investigate and subsequently communicate to the treats the power plans put on the lake environment. These are according to the NGO's , problems relating to pollution from plant operations, including waste water run-off, changes in temperature of groundwater inflow into the lake and airborne hydrogen sulfide.

During the exponential growth of geothermal and hydro power stations from 1997 to 2009, scientists and other members of the public who have been critical of the energy policy being pursued in Iceland were repeatedly marginalized or blacklisted by the authorities. Resulting in a situation where scientists became too afraid to voice an opinion on the power policy in Iceland during that decade. The author of this paper is one example. After graduating with a PhD in ecology from Yale University in USA in 2000, I was hired to write an impact assessment for a proposed hydro power reservoir in the Thjorsarver highland oasis. After handing in the

assessment, the legal office of the National Power Company turned the assessment around in a way that was quite different from my results and the results of the scientists working on research in the area, where serious negative impacts of the power project were deleted from the report or assessment changed into being non-significant. The subsequent struggle show examples of attempts for blackmail, threats and indications of phone bugging, and active propaganda against me as a researcher from both power companies and members of parliament. Evidence show correspondence between the coalition of power companies and one of the Ministers where the power companies asks the government to make sure I will not receive public jobs in the country – resulting in the State Ombudsman declaring the government breaking the constitution on handling my affairs.

The intense face of power development was paused in 2009 as a result of a financial crash in Iceland and a change in government. There is, however, an intense push to begin the power development rush again. Powerful political entities still believe in that further energy development and development of energy intensive industry will be beneficial for economical and socio-economical reasons. However, every new power project will only increase the percentage use of the energy intensive industry. However, a report from McKinsey & Company (2012) reveals that capital productivity in the energy sector is the lowest across all sectors of the Icelandic economy. With 25-30% of the capital stock directly or indirectly invested in the energy sector, is by McKinsey considered to be detrimental to the overall capital productivity of the Icelandic economy. The electricity and water and metal manufacturing have the lowest GVA (gross value added) per unit of capital of all industries in Iceland, despite the power industry providing a foundation for a strong export based heavy industry sector (McKinsey & Company,

2012).

Recently, hydro-power and geothermal resources have increasingly been developed within protected areas, or at least impacting protected areas significantly (e.g., Lake Myvatn area and some areas affected by the Karahnjukar hydro project). New national parks or protected areas tend to be enclosed by areas of potential interest to energy companies (e.g., Vatnajokull National Park) and in some cases (e.g., Reykjanes Peninsula) existing boundaries on protected areas appear to be ignored. Some of the endangered flora and fauna include a high variety of heat-resistant bacteria, potentially of commercial use and still needing to be described (Pétursdóttir et al, 2008) and rare plants like the small adder's-tongue (*Ophioglossum azoricum*) found solely on these warm grounds. It seems clear that in almost all cases, areas with high conservation (natural and cultural) value also show good potential for harnessing energy.

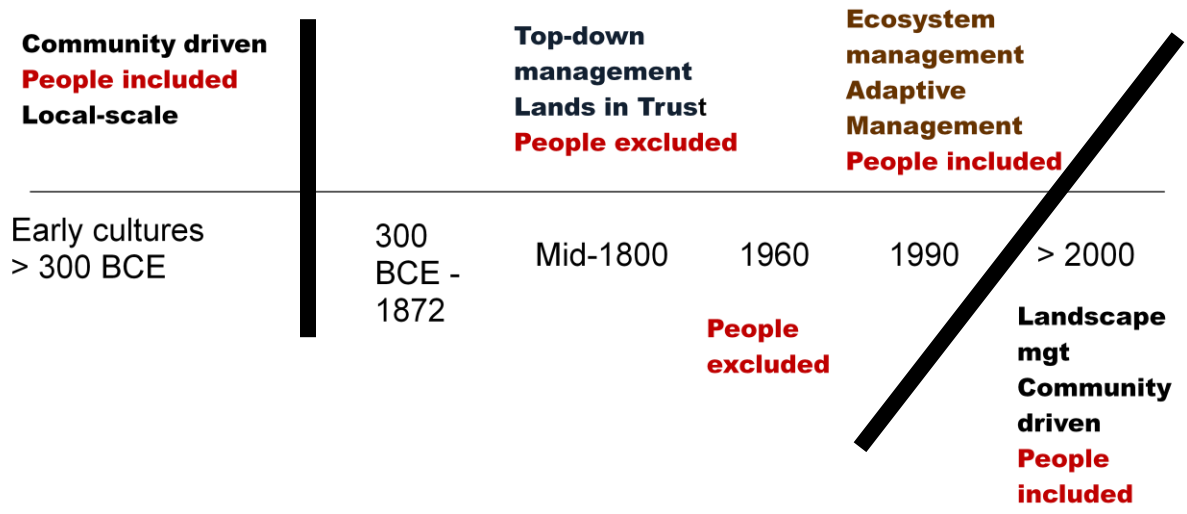
10 Portfolio Element #4: Creative governance from consensual flexible partnerships

10.1 Long Western World History: Few stories of consensual and equitable governance

10.1.1 Historical top down governance

The western industrialized countries in general do not have a history of making decisions that are inclusive of the village who are impacted by the choices that are made. The village used to be involved in managing their local-based resources but most of our history of natural resource

decision making has been a top down approach. The figure below shows the long history of rulers, the rich and political elites making and controlling the decision process. The people were mostly excluded from the decision process for natural resources until the 1990s. This means that there is a 2000 year history of top-down management compared to the recent three decade history of people included in this process.



When the first European colonialists arrived in North America, their decision-making systems followed the European model of Kings or rulers who were the ultimate decision-makers. If the ruler's dictates were not followed, it could result in imprisonment or even death. The most brutal case recorded was in the Old German laws mentioned by the Roman author Tacitus:

> ***"He noted that the penalty for someone who dared peel the bark off a living tree (and thus killing off the tree) was to have his navel cut out and nailed to the tree and then to be driven round the tree until all his guts were wound about its trunk."*** //www.smr.herefordshire.gov.uk/education/Medieval_Countryside.htm

At times a King's decision worked to the future benefits of a country even though that was not the original goal. For example, Louis XIV of France had a Secretary of State for Foreign Affairs, Controller General of Finance and Secretary for Naval Affairs who developed a program of economic reconstruction that made France a dominant sea and economic power in Europe. This was codified under the 1669 Colbert ruling on Waters and Forests (www.foret-de-bourgogne.com/index.cgi?RUBRIQUE=REG). For Louis XIV, Colbert recognized the need for France to manage its waters and forests to become a ship building and naval power while maintaining the lavish life style of the king. When first implemented, this ruling was not a democratic decision process for how these resources would be used in France. This rule did eventually benefit France since it stimulated the planting of the vast oak forests that France has today and produced a valuable commodity, e.g., oak barrels that are preferred by wine makers around the world for making quality wine.

10.1.2 Historical Western Governance structures that did include people

For the western industrialized countries, the northern European countries (e.g., Scandinavian countries including Iceland) historically had governance practices similar to Native Americans. The historical consensual practices based on community decision-making are summarized in the box below for Iceland.

Box 17: COMMUNITY DECISION PROCESS IN 9th to 11th CENTURY ICELAND

From settlement of Iceland in the late 9th century and until 1262, Iceland was an independent country with no centralized governing body. Legislative and legal affairs were settled in assemblies, which were both regional and in a centralized manner. The centralized assembly, named Althingi was held in mid to late June for 2 weeks every year, from foundation in the year 930. In the center of Althingi were 48 members, named godar, each of whom brought 2 parilamentary members. In addition, there was the logsogumadur, or lawspeaker, elected for a

term of 3 years, who was the only paid member of the assembly, and who had the greates authority. The lawspeakers job was to stear the meetings and proceedings, and know by heart the laws of the country. The authority of the lawspeaker lasted only for the duration of the Althingi. The rulings in matters that needed judical attention were in 3 main catergories, 1) payment of penalties, 2) banishment for 3 years and 3) banishment for life. There was no death penalty per se, but those banished for life were considered rightless in society. The assemblies had only a legislative and jurisitcal domsvald power, but no administrative powerframkvæmdavald. In fact framkvæmdavald was in the hands of the relatives of the victim, creating a sort of vendetta system, which could be enforced on the perpetrator or someone closely related to him.

The laws of the lawspeaker were written down in Iceland in 1117-1118, creating a law book, Gragas, which is one of the most ancient texts of written germanic law. For some reason the law book was given name of one of the two most common goose species in Iceland, the grey lag goose (Anser anser). The book is a very good reference to the way people ruled the country in its earliest centuries, and the way of life in Iceland at that time. It is also a very good referece to how decisions on land management and use of resources were made.

In the land and natural resource use chapter of Gragas, detailed rules are laid out how grazing lands should be managed, and how forests should be harvested in a sustainable manner, especially in cases where the resources are owned by more than 1 owner. Common lands should only be used by a Certain number of sheep, and the grazing land in the commons should not be cut for hay. Also if the environmental status of the commons is degraded, or someone suspects fatter sheep with less grazing intensity. Changes in land use regimes where brought to the regional assemblies for decisions. Grazing of pigs were forbidden in common lands. Hindering the migration of fish by putting nets across rivers was forbidden, and subject to penalties.

In later centuries after Iceland got new law books through formal alliance first with Norway and later with Denmark, and after a series of famines and plagues, the former sustainable system gained through the use of the earliest laws deteriorated, resulting in the degradation of both forest and grazing land resources.

Beginning in the 1980s, the western industrialized world recognized the need to link the social and the natural systems, i.e., ecosystem management, to make decisions for our environment (Vogt et al. 1996). This new paradigm highlights the importance of including a broader sector of society in making decisions. The tools to do this however did not exist when ecosystem management was initially adopted. The western world was a late entrant into formally including humans to their natural landscapes. American tribes had already thought about and practiced a system based management of their resources and had robust trading of resources regionally for

more than 1,000 years.

The western industrialized world diagrammatically drew ecosystem management as a circle representing the social system intersected by the natural system (GLP 2005). This meant that the social and natural systems only linked in the circle segments that intersected. It also suggested parts of the ecosystem did not have connected social and natural systems. It does connect social vulnerability to changes made in the ecological system. It shows well the indicators that need to be included when making complex environmental decisions. It is less able to demonstrate the drivers or links between the social system and natural system. The figure of the interconnected land systems identifies generic drivers of change but is difficult to use in a local landscape. This meant that the social and natural systems only linked in the circle segments that intersected. It also suggested parts of the ecosystem did not have connected social and natural systems. It does connect societal vulnerability to changes made in the ecological system.

The social system is also more complex than the figure suggests. It provides a framework for thinking about the problem but not how to practice real ecosystem management. This becomes relevant when the issues are conflicting and competitive choices exist. This situation typically results in stalemate and an inability to move the decision process forward. In an effort to develop consensus among disparate stakeholder groups, many attempts have been made to forge a collaborative group of all the stakeholders and bring them into the same common space to work through the decisions to develop acceptable compromises for each problem.

Despite European colonialists and their descendants adopting a federalism model of governance

in North America, a process for making decisions on more conflicted and competitive resource issues did not exist since at that time the scarcity of resources was not on anyone's radar screen. Once the scarcity of resources and the competitive values from the natural landscapes became a forsworn conclusion on the mentality of western European and their descendants, they began to form internationally-based organizations with representatives from each member country to make decisions on nature, society and the environment for the global society.

Many of the initiatives that developed were non-governmental organizations that represented many countries and advised governments on international law and policy formulation on multiple topics including natural resources (Vogt et al. 1999); e.g., The United Nations was formed in 1945 and has 193 member states. Many of these organizations focused on developing cooperation among member countries on issues that needed to be addressed by global citizens: peace, conservation and biodiversity, economic and social development, human rights, etc.

Most of the global multilateral organizations were formed after World War II and today contribute to global problem solving because they

> ***"have become unique repositories of specialized knowledge gathered through decades-long worldwide operations. But their roles and their relationships to their owners and overseers…preclude them from taking on a central role in global problem solving. They cannot just decide on their own to cut through the tensions and disagreements among their owners." (Rischard 2002).***

Rischard wrote a book entitled HIGH NOON. 20 GLOBAL PROBLEMS 20 YEARS TO SOLVE THEM in 2002 that introduces new thinking that is needed to solve global problems. In that book he articulated urgent global problems are getting worse and global communities have not developed effective or adequate strategies to deal with them. He recommended "networked

governance" since "undeniable *failure* of the entire international setup and the world's nation-states at the task of fast and effective global problem-solving (Rischard 2002). He clearly states that this cannot be a process where we "reform of a few existing institutions.

One of the tragedies of our times is the widespread belief that we need only reform a couple of existing international organizations, and presto! All will be fine." We would take his ideas even further if the global community is to move away from the control of special interests groups in natural resource consumption decisions. We propose that the 'federalism' idea introduced by the Iroquois League has merit and would allow a 'village' or the 'local placed context to be part of the decision-making process. Rischard (2002) articulated well the importance of knowledge and creativity to solve global problems today:

> ***"Simply put, earlier technological revolutions had to do with transforming energy or transforming materials. This one has to do with the transformation of time and distance, and thus cuts deeply into the fabric of society. At least as important, it has made knowledge and creativity the number one factor of production—far more important than capital, labor, and raw materials."***

As summarized on the book flap of Rischard's 2002 book:

"Rischard proposes new vehicles for global problem-solving that would be acknowledged by governments but that would function as extra-governmental bodies devoted to particular problems. Their powers would not be legal but normative: They would produce globally recognized standards and would single out the nations and organizations that were

Books have been written (e.g., Susskind) on the topic on how to bring polarized and conflicted groups to the same table to work on particularly tricky problems. Several years back one of us (KV) was at a consensus building workshop where several critical insights became clear on when consensus would work or not. If a conflict continued unabated, the really important topics had

not been included in the discussions. Another insight that emerged during this workshop was that the negotiated solution will not succeed when a rival group feels that they have to give up too much for the benefits they derive from being part of this agreement.

This recently happened in Klamath Falls, Oregon where in 2010 when a collaborative group worked on a Klamath Basin Restoration agreement where (Yardley 2012)

> ***"after five years of confidential negotiation, an unlikely alliance of Native American tribes, environmentalists, farmers, fishermen, governors and the federal government signed the Klamath Basin Restoration Agreement. The agreement was hailed as evidence of a new era in the West in which bitter divisions over natural resources could be bridged. Within a decade, it dictated, four dams would come down, enabling much of the river to flow freely and its once-mighty run of salmon to return. At the same time, farmers would be assured of water for their crops and affordable power. And Indian tribes would regain land lost decades ago."***

The Klamath Basin Restoration Agreement appears to be unraveling two years after it was negotiated due to some farmers becoming afraid of losing access to sufficient supplies of water and who pursued political solutions to control their access to water. Since the dams collect much of the water used by farmers, dam removal would reduce the amount of water that farmers would be able to access. Since about 74% of the surface water in the western US are used in agriculture (irrigation and livestock) (CBO 2006), they had valid concerns that were insufficiently addressed during the negotiations or they did not articulate sufficiently their concerns. It also could be that this competition for water supplies has been aggravated by the droughts that this region has experienced. Droughts have "prompted federal water managers to shut off irrigation to ensure enough water for endangered fish." (Yardley 2012). This has been further complicated by the "commercial salmon fishing on the West Coast was shut down in part because of the decline of

salmon populations in the Klamath. Scientific research indicated that removing the dams was the best way to save the salmon." (Yardley 2012). The tribes also have treaty rights to fishing and hunting from these lands that they had relinquished to the federal government. The article written by Yardley (2012) wrote:

> ***"I always refer to us as the radical middle because there's nothing radical in the Klamath about fighting over water," said Craig Tucker, the Klamath coordinator for the Karuk Tribe of Northern California and a supporter of the 2010 agree. "What's radical is learning how to share."***

The European colonialists had much to learn from the American Indians they came in contact with but their minds were not receptive since they felt they had manifest destiny on their side (see A. European Colonial Manifest Destiny). It is no accident that the Grand Coulee Dam dispossessed the Colville Tribes of their lands, isolated them from the rest of the world, subjected them to poverty, and that the benefits of this project flowed to incoming non-Indian farms and businesses. This is consistent with the colonialistic policies which have been in place since 1492 when Columbus landed. Laws, policies, and history itself was not implemented for the benefit of indigenous peoples (Wilkinson 2005). The intent was to exploit tribal resources and dispossess tribes of their lands and resources as expeditiously as possible. One observer, remarking on similar circumstances n the Pine Ridge Reservation remarked in the 1950's, that the BIA was, "The Company in a company town."

The bureau dominated the economy as employer, purchaser, and consumer. It handed down the laws and ran the police and courts. It controlled the tribes only economic asset…they controlled everything. You couldn't even sell your cows without permission…" (Wilkinson 2005). Instead of protecting tribal assets or at least getting a fair deal out of the Grand Coulee Dam project, the

BIA had a practice of assisting with the dispossession of tribal lands and would tell Indians that you cannot stop progress and if you don't sign on you may end up with nothing at all. But, "…history is about power. It is mostly about power." (Smith 2005).

You can look at US generated histories regarding Grand Coulee Dam for example and it is a story of man conquering nature, a wonder of the world, and there are many happy farmers with water to irrigate their farms and tourists with big lakes to water ski on, and happy housewives with modern electric appliances. The Tribe is totally invisible and there is no mention of the lost salmon or beautiful Kettle Falls, these parts of history had vanished. It took the Colville Tribe half a century to combat this history and to get a settlement against the US. The largest settlement of its type was negotiated and approved by Congress in 1994 and is known as the 181-D settlement. It compensates the Colville Tribe for lands flooded based on a formula derived from annual power sales. There was no compensation for fisheries loss, culture loss, economic losses, or any other losses, however. The US initially offered the Tribe $63,000 in 1946. The Tribe immediately filed a claim in the US Court of Claims, which was set up by Congress to deal with these issues (Rawls 2001). The court expired in 1978 and the Colville case was not settled. The Tribe had to go directly to the Congress and reopen the case later, when it had the financial resources to do so.

Hydropower is often cited as the perfect power source, it is both clean and renewable. However, even hydropower can create winners and losers, some benefit and some pay the price. Interestingly, the 1990's are cited as a time when indigenous scholars started to assert indigenous views and created indigenous history movements (Wilson 2008) and Native Americans began to

assert their power. Tribes began to articulate their own stories. The Colville Tribe produced their own documentary and story and they went to DC and presented their own story to Congress. They bypassed the designated trustee, the BIA. This is one instance; however, there are still many vestiges of the colonialistic policies within the federal government. These have been developing since before the founding of the US and they need to change. Many would argue that this policy was a pendulum and sometimes swayed with sympathy toward trying to assist Tribes, but the end result cannot be denied.

Tribes have lost the vast majority of their lands and Tribes, with some exceptions, are still deeply mired in poverty. The US policies set up to expedite this exploitation are still in place and in many cases need to be changed if Tribes are to progress and maximize the benefits from their own resources.

10.2 American Indians: Village and confederacies make natural resource decisions

Individual tribes have many different governance structures so the structure by itself is not enough to make equitable natural resource decisions. Tribes have a history of equitable resource decision-making despite having a multitude of tribal governance structures. This supports our contention in this book that culture and traditions are most important for setting the context for sustainable and equitable decisions. You do not need to adopt one model for how your political structure is built but need to adopt a decision-process that is consensual and where multiple people provide leadership on how any resource is produced or consumed (see Final Words on Essential Native American Leadership).

Tribal governance structures are highly variable and reflect past and current approaches to decision-making bodies. In 1934, the Indian Reorganization Act was passed by Congress which had as one of its goals to eliminate traditional governance structures of American tribes. There was a movement to get rid of traditional Chiefs who had life-long appointments in many tribes and to establish an elected Council or Boards type government. But a few tribes retained their traditional government forms. The Pueblos in the Southwest US kept their traditional systems. Some tribes adopted hybrid governance structures. The Warm Springs Tribe has an elected Council, but they also have three Chiefs who hold lifetime appointments. This contrasts the Colvilles where a Chief has a two year term. Other tribes have changed their Constitutions to lengthen terms of their leaders or chiefs, so some changes are slowly taking place. Therefore it is difficult to make easy correlations between forms of government and success in how resources are produced or consumed. Tribes also have very different resource bases that exist on reservation lands that can be used to develop local economies. Further, some of the traditional based governments do not place the same value on money success.

So this takes us back to looking at how decisions are made and not the governance structure itself. Tribes have been especially effective at avoiding polarized situations because the village is part of the decision process and it is not a 'top down' decision-process. So what elements of the Iroquois League are needed to expand the "networked governance" and "global issues networks" proposed by Rischard (2002)? We propose that that we need to shift towards a 'bottom up' approach to decision making on scarce resources, i.e., consensual governance that is not driven by special interest groups.

There is disagreement in the literature on the full extent that Native Americans contributed to the Constitution of the US (Payne 1996). Some historians suggest that when the first European settlers came to eastern North America and had formed 13 separate states, the Iroquois chief Canassatego suggested the formation of a federal state comprising these 13 states and what policies would allow this to occur (Weatherford 1988). Benjamin Franklin was one of the advocates for the adoption of the policies embedded in the Iroquois League. "Unlike European governments, the league blended the sovereignty of several nations into one government...The Indians invented it [federalism] even though the United States patented it." (Weatherford 1988).

We suggest that American tribes have much to contribute towards learning how to practice consensual governance. The designation of salmon chiefs by tribes to arbitrate conflicts over salmon suggests an approach that should be pursued by today's natural resource managers. It was the responsibility of the Salmon chief to make sure that someone with no food will get some salmon. The image to the right of Salmon Chief Tommy Thompson and his wife Flora (www.corvalliscommunitypages.com/Americas/US/Oregon/OregonNotCorvallis/salmonall.htm) . Chief Thompson was the Colville salmon chief who presided over Kettle Falls and was an arbitrator when conflicts arose over salmon.

The following excerpt describes Chief Tommy Thomson well and the role that he played to ensure equitable distribution of salmon and

to ensure the viability of salmon into the future:

> **"When I knew him he said he was a hundred years old and he probably was. He was quite dignified but a very tiny man and very quiet. His spokesman was Flora and Flora wanted everybody to treat him with respect. She looked after him very carefully. Before that and even to that time – which I think is remarkable looking back – he was the one who designated the rocks where you would fish. Now, some were better than others but that rock belonged to you and you [fished] that one but you didn't [fish] anyone else's. And he controlled the Indians to keep that and they looked to him as the chief there even though they came in from other tribes. They had great respect for him in many ways."**
>
> ~ Barbara MacKenzie, interviewed by Katy Barber, 30 September 1999 ~

These chiefs mentored others in the tribe to carry on this tradition for equitable distribution of resources. This was not a responsibility that ended with the death of a chief but steps were taken to ensure that resource responsibilities continued beyond one leader. This continuing mentorship of future leaders who are targeted for their future leadership potential is described in Box 18. The next story characterizes the decision model used by Native Americans and how the village made choices, i.e., not a select few.

Box 18: Michael Marchand's ENCOUNTER WITH Eightball Jim

The Columbia River in the US Pacific Northwest has its headwaters in British Columbia, Canada, and travels southwest to the Pacific Ocean. Today it is a series of major hydroelectric dams that provide electricity for the region. But, prior to the dams, the River was one of the world's richest salmon fisheries that supported thousands of Native Americans for thousands of years. There were two great fisheries on the River. The upper fishery was the once great Kettle Falls. It was inundated in 1942 with the completion of the Grand Coulee Dam. The once great lower fishery was Celilo Falls. Kettle Falls was famous for its basket traps and salmon spears. Baskets up to 30 feet long were placed at the foot of the Falls. Thousands of salmon trying to leap over the Falls would fall into the big baskets. Early observers with the David Thompson Expedition counted 2,000 salmon coming out of a single basket trap in one day. The spearing was done from scaffolds jutting out from the Falls. The Celilo Falls fishing is noted for its big dipnets, which are still used today. Actually all forms of fishing technology were used, including

weirs, traps, nets, and hooks, but these were the main methods. Fishing itself was done by men. There were strict traditions and ceremonies that had to be followed to ensure that the salmon runs would come back each year. Salmon fishing villages would swell in size each salmon season. Thousands of Native Americans would gather each salmon season and included traders and craftsman and visitors came from all over. Salmon supported the local tribes but they were so abundant that they were also a trade commodity. Salmon was dried and put into bales and tons of salmon would be stacked all around each fishing site. This salmon was brought by canoe downriver and traded up and down the Pacific Coast. Horses carried salmon into the Great Plains. The Pacific Northwest tribes were traders and businessmen. The salmon was the economic base and also the foundation for their entire culture and existence. The Native Americans were the guardians and caretakers of the River. This tradition continues today.

One of the iconic tribal leaders in the Pacific Northwest was Nathan "Eightball" Jim, from the Warm Springs Reservation in the state of Oregon. I (MM) was a Councilman from the Colville Confederated Tribes in Washington State and had arrived early for a meeting with the Columbia River Intertribal Fisheries Commission at their Portland Office. Eightball was one of my mentors, he was looked up to by all tribal leaders, and he was happy to see me, he grabbed my arm and said, "Mike come with me, I need to talk to you."

We sat down in one of the offices and he proceeded to tell me a story. He said, "Mike, when I was a small boy, I was the young protégé for the Celilo Falls Salmon Chief." Celilo was one of the best salmon fisheries in the world for thousands of years and was located on the lower Columbia River. It supplied the salmon which provided food for thousands of Native Americans. The Salmon Chief was in charge of everything at the Celilo Falls.

Eightball said that in those days the Indian people knew the salmon very well and by looking at the salmon they could tell where it was heading to. He went on to say that when the Salmon Chief spotted incoming salmon that were heading up river to the Kettle Falls Fishery, that he would call an immediate halt to all fishing at Celilo Falls. This was to allow passage of the traveling salmon so that they could make it up to the headwaters of the Columbia River to ensure that the up river tribes had salmon to eat and also to ensure that enough salmon made it up river to spawn and thus sustain the great salmon runs forever.

Likewise, the great up river Kettle Falls Fishery also had its own Salmon Chief. He was in charge of all that happened at that fishery. At the right times, the fishing would be stopped to allow fish to pass though to the headwaters of the Columbia River. These two great salmon fisheries were managed and sustained for thousands of years over distances of hundreds of miles and amongst tribes who were often at war with each other. They put aside their differences to manage and sustain the great salmon runs.

Eightball was dead serious in telling this story, he was not laughing and joking as he often did in other settings. He said he has spent his life trying his best to protect the river. To undo the damage from the dams. To protect and bring back the salmon. To fight for our sacred right to fish as had our ancestors for thousands of years. He said he was getting old and soon it would be up

to the new generations to continue this work. This is why the creator put us on this earth.

The story about how Coyote Breaks the Dam and Brings Salmon up the Columbia River appears to be a simple story meant to entertain children but is also a story that teaches. It introduces the idea that each village has to contribute something towards the common goals, i.e., in this able to fish for salmon. In this story, each village had to give something important and valuable, i.e., a beautiful woman as a wife for coyote. This shows a consensual decision process for determining who would be able to fish from the river (see Box 19).

Box 19: COYOTE BREAKS THE DAM AND BRINGS SALMON UP THE COLUMBIA RIVER (summarized by Mike Marchand, Colville Confederated Tribes)

In ancient times monsters had dammed up the mouth of the Columbia River where it enters the ocean. The people upriver were starving. There were no salmon. The main food of the people was the salmon but there were no salmon. So the people prayed. This is one of the creation stories of the upper Columbia River tribes, known as Coyote Stories. Coyote the trickster is the progenitor, sometimes he does good and sometimes he does bad, and as often as not he acts foolishly. Coyote went down to remove the dam to save the people. Using his trickery he was successful. With his staff in hand he led the salmon back up the Columbia River. He made his way up the Okanogan River. He reached the branch of the river known as the Similkameen River. He asked the people there for a wife. They refused. The women there laughed at Coyote. In vengeance, Coyote built a great waterfalls there to stop the salmon forever from going up the Similkameen River. Then he went to Lake Osoyoos. There the people were generous, they gave him a wife. To this day, the Lake is rich in salmon. He got tired of this wife and went up to Okanogan Lake. Again they laughed at him. They got no salmon either. Coyote then went to the Sanpoil River. They wanted salmon. They gave him a beautiful young maiden for his wife. He rewarded them with the finest salmon. But he got tired of this wife too. Then he went up the Columbia to the where the Kettle River enters the Columbia. These people were kind and generous. They gave him the most beautiful maiden for his wife. Coyote built a great waterfall there, Kettle Falls, and built a great village. Coyote said all the people will have to come and beg salmon from them in the future. They will bring many kinds of food to trade for your salmon and your people will be wealthy and have great power. Then Coyote got bored. Coyote left his salmon there and went away. The people's prayers had been answered, if they were kind and generous to Coyote. But if they were greedy and did not want to give Coyote a wife, then they got no salmon. Each river was affected differently by Coyote as he made his travels. This is how things were for thousands and thousands of years after Coyote led the salmon up the Columbia River. The River was the source of their power and food. So long as they prayed and took care of the River and followed their traditions life would be good. Each spring the People pray for the salmon to return and they conduct a First Salmon Ceremony to pay their respects to mother Earth and the Creator Quillenchooten.

10.3 Link taboos to non-negotiable values when making economic decisions

Today, many people benefit from indigenous peoples who valued and held water and their lands sacred (see 2. Water as a Sacred Resource). This continues to support our metaphor where upstream people established sacred sites hundreds of years ago to protect water and today's downstream people are the beneficiaries of these past practices. Today we need to change this disconnect between where resources are produced in the headwaters of rivers and down river political powers who consume these resources in the lowlands. The potential of reconnecting resource production and consumption as being positive for sustainability is shown in the following fact - about a third of the fresh water drunk in large cities originates from these sacred areas established by villages in developing countries (UN 2012).

Sacred groves with ecological significance were established by past societies and they conserved multiple aspects of nature (Pandey and Rao 2002):

> "Conservation of Biodiversity – The sacred groves are important repositories of floral and faunal diversity that have been conserved by local communities in a sustainable manner. They are often the last refuge of endemic species in the geographical region.
>
> Recharge of aquifers – The groves are often associated with ponds, streams or springs, which help meet the water requirements of the local people. The vegetative cover also helps in the recharging the aquifers.
>
> Soil conservation - The vegetation cover of the sacred groves improves the soil stability of the area and also prevents soil erosion."

It is how these villages were able to protect their resources that are interesting for our story.

They established protected areas where resources production and access was locally controlled by villages, i.e., small, flexible societies, and where the village established rules to protect these sites (Perla 2007). The villages did not separate their sacred sites from all of the natural resources they controlled so they did not set up sacred sites as a 'zoo' (see Western world view: Isolate nature from humans) where were humans could look at but not touch nature. They were effective at maintaining the village values in these protected areas by community accepted cultural taboos and taboos. These taboos were passed down from one generation to the next using folklore or oral history.

The Native American tribes do not develop super centralized governance infrastructures that are harder to mobilize in response to disturbances or altercations. Large centralized governance structures tend to develop specialized decision bodies, e.g., a forest service, health, education and agriculture to name a few. These specialized organizations are mandated to reach goals for each resource under their jurisdiction that lends to propagate the upriver and downriver approach to decision-making. The communication networks among these different organizations are also difficult to maintain and frequently decisions are made in isolation from the other organizations that should be at the table. This is one of the points that Rischard (2002) was attempting to resolve when he wrote his book.

Many large organizations have a strong culture to not change even when facing human or natural disturbances. The idea of having many smaller groups of organized and communicating decision-makers was already articulated back in 1973 by Schumacher in his book 'Small is Beautiful: Economics as if People Mattered' (Schumacher 1975). The ideas in his book have not

caught traction in society despite the fact that he made very strong arguments for not maintaining a large centralized economic structure. These debates are ongoing but occurring in the bioenergy sector. Still today the idea of large centralized energy biomass facilities is made to be most economical despite the case that can be made for decentralized energy production in rural areas (Vogt et al. 2005).

CULTURE AS THE CORE OF NATIVE AMERICAN RESOURCE LEADERSHIP

11 Traditions are not just writings found in library archives: Native Americans driving and controlling resources today

11.1 The historical context of resource management on tribal lands

Some Tribes still have large land holdings, despite genocide and removal policies. Some reservations are rich in natural resources,. But most tribes are still mired in deep poverty. The Bureau of Indian Affairs viewed leasing as solution this problem to develop tribal economies and resources. Their intentions may have been good, but the outcomes were often tragic. Tribal resources would be leased to outside non-Indian businesses. This solved several problems. The government did not have to put up the capital to invest into tribal resources, and appropriating dollars for Indians has seldom been a national priority. The outside businesses also had expertise and experience in extracting and processing the various natural resources. So, with virtually no investment of federal money, tribal resources could then be developed and this would provide lease payments and royalty payments to tribes who badly needed the income. This was the intent. In practice, things sometimes did not work out so well.

Energy resources were exploited early in history, especially in the gas and oil fields. According to Parkers land history, “The Secretary of Interior and the Bureau of Indian Affairs continually failed to uphold the federal government’s trust responsibility in the leasing of oil production of Indian lands during the twentieth century. The BIA frequently did not obtain the highest rates possible, ineffectually regulated leasing, and sometimes leased Indian land

without permission…some leases on the reservation lands provided Indians with less than 1 percent of the profits made by the leaseholders in their exploitation of the property.“ (Parker 1989). The Federal government’s mismanagement resulted in the losses of millions of dollars of money that was supposed to have gone to the Native American owners. Parker’s history reports that

> ***“Energy companies underreported royalties due, failed to make payments, or made late payments without penalties being assessed. Theft of oil was reported on the Blackfeet, Wind River, and Navajo Reservations amongst others..”*** (Parker 1989).

Energy was an important resource being collected from tribal lands, but tribe received little benefit from these resources. The technology, jobs, and capital equipment remained in the hands of outside corporations.

There were several problems. One, the Bureau of Indian Affairs itself was never adequately funded to carry out its mandated duties; there was always a shortage of administrative capacity to actually serve as a trustee over Indian resources. There was a lack of management and administrative systems. Personnel were in short supply. The system was never set up properly to begin with. The BIA has not been able to keep up with recording land transfers. They also found it difficult to keep track of heirships.

The BIA has lost track of thousands of landowners and millions of dollars of lease moneys. These records have basically been lost and are unaccounted for today. This has resulted in a flood of tribal trust lawsuits versus the US government. Many of these cases are currently still pending. The most famous of which is known as the **Cobell Case**, a class action lawsuit

versus the US asking for an accounting of tribal member Individual Indian Money Accounts. This case has been dragging on since 1994 and has led to several contempt of court charges versus several Secretary of Interiors, who have been unable to settle the case. The plaintiffs contend the US owes billions to Indians, and the US says it only amounts to less than $500 million owed to Indians. There are similar lawsuits in place for tribal assets.

In addition to the incompetent trustee problems, there are other problems related to the leasing policy. Typically the tribes DO NOT own any of the plants or facilities, the technology is a black box, so the tribes have no way of knowing whether the are getting fairly paid or not and the BIA typically does not have the capacity to determine it either. Since tribes are locked out, the technology remains a mystery and control stays with the non-Indians. Typically, the tribes are also locked from filling most of the jobs that open up.

Beginning in the 1970s, tribes have gradually begun to assert more control over their own resource development. Tribes have begun to get more organized amongst themselves to share information and to build up a collective expertise to deal with the resource issues and several organizations have been involved. One of the primary resource organizations was the Council of Energy Resource Tribes. Today a number of tribes have taken over their resource companies completely or else they have much more significant input and control over non-Indian companies if present. Of course the picture is not perfect yet. Tribes often have been left with major environmental problems from decades and decades of BIA mismanagement. Dealing with the cleanup may take many more decades in some cases.

Due to pressure from tribes, in 1982, Congress passed the Federal Oil and Gas Royalty Management Act. This legislation included provisions for new reporting procedures, inspection, enforcement, and penalties…responsibility turned over to the newly created Minerals Management Service…", but thefts have continued to be reported (Parker 1989).

Despite attempts to correct the situation, problems persist, the trustee continues to struggle and Indian resources continue to be the targets for unethical government and private forces. As recently as 2009, another Indian resource mismanagement scandal erupted in the very agency whose purpose is to protect Native Americans. It is reminiscent of the tales of thievery and exploitation from the 1800s in Oklahoma, apparently some things stay the same. The following was reported in an industry newsletter from 2008, "A report released by Department of Interior Office of the Inspector General has revealed ethical violations by employees of the Royalty in Kind Program (RIK). The report alleges unbridled unethical conduct by employees, including illicit sexual relations with both RIK employees and members of the gas and oil industry, illegal drug use, and acceptance of numerous gifts and gratuities from oil and gas companies." The report continues, "it was found that 19 RIK employees - one third of its staff - had accepted gifts." The Inspector reported that Chevron had refused to cooperate with the investigation. Secretary of Interior Kempthorne stated that he was outrage and promised swift action to fix.

The governments dealing with Indians and oil are fairly well known. There are numerous books and even movies that touch on the history. But similar tales could be told about other tribes in other resources also. The story in the Northwest with hydroelectric dams is similar

in that tribes were exploited, their lands confiscated, ways of life destroyed, and in the case of the Colville Tribes and Grand Coulee Dam. It has taken over sixty years to even get to partial compensation for damages resulting from the Grand Coulee Dam.

11.2 Stories of tribal resource management

The tribes have been providing leadership by using the treaties that they signed to pursue environmental restoration and mitigation for their cultural resources. Without the tribes, salmon restoration would probably not be happening in the PNW US. Tribes have been using the Treaty of 1855 to re-establish traditional knowledge and cultural factors in the Pacific Northwest landscape.

Tribes are local but also global sellers of natural resources to other countries but are also working at making resource production so it does not harm the local environment. Currently, the tribes in Washington are growing dry land wheat that is all shipped to Asia. The tribes are working at consuming this wheat in the PNW US so that the money can be kept in the state. Other non-tribal farmers are practicing 'artificial farming' because they have to pump water to the fields and this water pumping is heavily subsidized and makes no sense. The farmers are not paying the full cost of the water they are consuming and do not see the damage they are imposing on the environment. They do not grasp the real water story because it is so heavily subsidized. Most of the tribal collaboration in resource management do not just benefit the tribe but have regional benefits to non-tribal communities and regional economies.

In the Columbia River basin, tribes have been the driving force behind the restoration of fisheries and forested lands along this river basin. Tribal members actively pursue projects to mitigate or restore lands that have been altered because of historical land-use practices. The Colville Confederated Tribes have 10 representatives that control water use because of the different jurisdictions that are involved (mining, forestry, and etc.). Native Americans in Washington State use traditional knowledge to make decisions regarding the use of their resources. When possible, they act in the best interest of 'the seventh generation' after them. As an example forest clear cutting has been eliminated under their stewardship along with the replenishing of fisheries. This standard has been applied to everything from forest management to salmon fishing. The individual tribes can fight amongst themselves, but when it comes to managing their resources, they work together for the overall good. This is the same story as the salmon chief (see Box 4).

Tribes take resource management very seriously and have used their political status to get state and the federal government to uphold treaty agreements and implement environmental practices that threaten their cultural resources. Examples of tribal collaboration on resource issues are summarized next starting with salmon, followed by forests and finally dam mitigation.

11.2.1 Salmon restoration and tribal co-management

There is a history of treaty rights giving certain Columbia basin tribes rights to fish from their customary lands, recognition of customary treaty tribal rights to salmon and as co-managers of fishery resources. For example, Cosens (2010) wrote how the Article 3 of the Nez Perce Treaty reserves gives:

> ***"[t]he exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places in common with citizens of the Territory." The language stating that the right is "in common with citizens of the Territory," was interpreted by Judge Boldt of the U.S. District Court, Washington in 1974, to entitle treaty tribes to up to 50% of the harvestable fish that pass (or would pass absent harvest en route118) the usual and accustomed fishing places. .. the ruling recognizing the legal right of Native American's equal access to fish .. the Ninth Circuit Court of Appeals interpreted the right of treaty tribes "in common with citizens of the Territory," as analogous to a co-tenancy, stating: [C]otenants stand in a fiduciary relationship one to the other. Each has the right to full enjoyment of the property, but must use it as a reasonable property owner. .. neither the treaty Indians nor the state on behalf of its citizens may permit the subject matter of these treaties to be destroyed."***

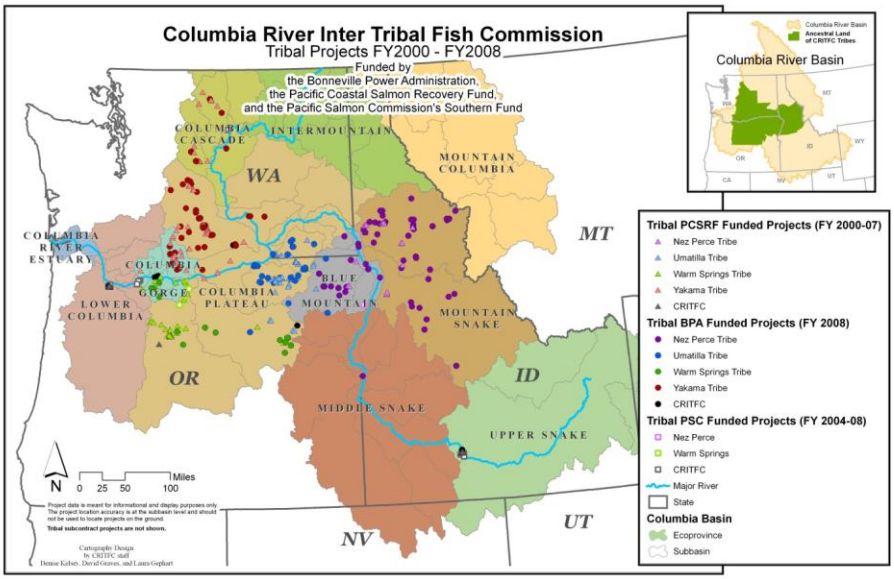
Tribes are active collaborators on projects to restore salmon fisheries in the PNW US. The US government guaranteed tribes sovereign rights to harvesting salmon in 1855 treaties. However, tribal harvest of salmon is and continues to be threatened by dams that block their migration to spawn in the upper reaches of river systems and degradation of river systems further aggravate salmon populations.

Once treaty rights of Native Americans were recognized, several Northwest US tribal governments united to restore the viability of salmon fisheries to be able to include salmon in their cultural practices. Four tribal governments, e.g., the NezPerce, Confederated Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, and Confederated Tribes of the Warm Springs Reservation, formed the Columbia River Intertribal Fish Commission ("CRITFC") in 1977 to unite the efforts of the four tribal governments to renew their sovereign authority in fisheries management." (Cosens 2010). These four tribes had historically "shared a regional economic economy based on salmon" (CRITFC 2012). "The tribes created a coordinating and technical organization to support their joint and individual exercise of sovereign authority. Based as it was on a time-tested tradition, the new organization,

the Columbia River Inter-Tribal Fish Commission, became a valuable means for organized intertribal representation in regional planning, policy, and decision-making. CRITFC's mission statement is (http://www.critfc.org/text/work.html):

> ***"The Columbia River Inter-Tribal Fish Commission's mission is to ensure a unified voice in the overall management of the fishery resources, and as managers, to protect reserved treaty rights through the exercise of the inherent sovereign powers of the tribes."***

These four tribes have been co-managing salmon on part of the Columbia basin. In addition, five other tribes on the Columbia who no longer had salmon migrating onto to their lands also formed the Upper Columbia United Tribes or UCUT. This group negotiated a memorandum of understanding with Bonneville Power Administration to ensure that their sovereign rights to salmon would be recognized (Cosens 2010).



A map of tribally managed projects on the Columbia River coordinated by the Northwest Indian Fisheries Commission (CRITFC) is shown in the map below. It reveals the extent of tribal involvement in the restoration of salmon habitat on the Columbia River. These projects are unique in that many tribes (e.g., Nez Perce Tribe, Umatilla Tribe, Warm Springs Tribe, Yakama

Tribe) through the CRITFC are partnering also with non-tribal partners to restore habitats across multiple watersheds. Many of these projects are on ceded lands located in Oregon, Washington and Idaho. These partnerships are also unique that the traditional boundaries of management agencies are no longer relevant and do not hinder the restoration of large watersheds needed to restore viable salmon populations. Projects vary from: 1) salmon habitat protection and restoration; 2) salmon research, monitoring and evaluation; 3) watershed and sub-basin planning and assessment; 4) salmon enhancement; 5) lamprey restoration; 6) wildlife enhancement, and 7) public outreach and education.

11.3 Dams – removal, mitigation and redesign

FUTURE OUTLOOK FOR DAMS

The need for renewable energy development seems likely to be a major US national policy goal for the next decade and probably beyond. There are some interesting trends in the hydropower industry. According the WDC Report, "The end of the 20th century saw the emergence of another trend relating to large dams – decommissioning dams that no longer serve a useful purpose…momentum for river restoration is accelerating in many countries, especially in the United States where nearly 500 dams have been decommissioned" (WCD 2000). This has occurred mainly on the smaller dams, the larger dams such as the Grand Coulee Dam, will be around for the foreseeable future, so tribes will continue with their efforts at continuing the efforts to mitigate the negative impacts from the dams on the river systems.

Analysis of the hydropower experience also has other applications for other green renewable energy projects in general. The WDC Report notes that, "By the end of the 1990's, it was becoming clear that the cost of controversy could severely affect future projects for dams and stall efforts to finance other non-dam water and energy development projects,"(WDC 2000). Analysis by the WCD Report commission showed "that 60% of the impacts were unanticipated prior to the project construction" (WCD 2000). Trust is a major issue and the track record of energy interests in assessing impacts or in dealing fairly with existing residents has not been very good in most past instances. An indication of this is that even the WCD Report points out the treatment of the Colville Tribes as a good example of non-equitable treatment of indigenous peoples. Despite this recognition, it took half a century to reach a monetary settlement for flooded lands on the Colville reservation. The fishing economy, however, has yet to be replaced with anything else even today.

There is also an assumption that hydropower does not affect global warming, but this too needs further analysis. According the WDC Report, "A first estimate suggests that gross emissions from reservoirs may account for between 1% and 28% of the global warming potential from GHG emissions… [and this] challenges the conventional wisdom that hydropower produces only positive atmospheric effects, such as reduction of emissions of carbon dioxide, nitrous oxide, sulfuric oxides, and particulates, when compared with power sources that burn fossil fuels," (WCD 2000).

The WCD Report recommends that future development be guided by three policy documents: 1) the Universal Declaration of Human Rights; 2) the United Nations Declaration on the Right to

Develop; and 3) the Rio Declaration on Environment and Development. These policies highlight the linkages between environment and development but also acknowledge the importance of local communities having a significant role in shaping national development strategies (WCD 2000). The WCD Report also notes that there has been a shift in the definition of public interest, "from one that placed a premium on overriding interests of economic growth to one that places more weight on the rights and interests of people and communities affected by a development." (WCD 2000).

In a nutshell, the World Dam Commission recommends that stakeholders be allowed to have meaningful participation in the planning and assessment of new projects. Projects should be assessed for impacts. There needs to social justice, one group should not be put into poverty so that another group can be made wealthy. None of this was done in the case of the Grand Coulee Dam. Tribes were put onto the Colville Reservation, and then their means of making a living was taken away by the dam. Even a half century later when the Congress did make some compensation for flooded lands, there remain significant dam caused impediments to economic development which still have not been addressed. In the meantime, generations of people have suffered poverty and have received inadequate assistance in rebuilding their economies, while other in the region enjoy the benefits from the hydropower.

Similar principles would apply to all other renewable energy projects also, though it is unlikely that many such projects would ever have the same magnitude of impacts as does the Grand Coulee Dam. Further mitigation and monitoring is also necessary for dams on the Columbia River and these efforts are ongoing. NW tribes have been in constant negotiation and litigation

to alleviate the impacts from the Columbia River dams since their inception and they will continue with this work. In 2009, several NW tribes negotiated an agreement with Bonneville Power Administration to implement nearly a billion dollars of dam mitigation projects to restore salmon on the river system. This work will be monitored and no doubt tribes will be back at the table to negotiate continued improvements in the next decade.

On May 2, 2008, the Columbia Basin Fish Accords were signed on the banks of the Columbia River (see photo on right; Columbia Accords, M Marchand R Sampson, BPA Agreement for nearly a billion dollars for fisheries projects). Together, leaders from the Colville, Umatilla, Warm Springs, and Yakama Tribes and agency officials from BPA and other federal agencies, gathered to sign a ceremonial deer hide to finalize a negotiated agreement of nearly a billion dollars. This money would be used to make improvements on the dams to allow for better fish passage and also to improve streams for salmon. It was not a complete solution, but it was a first step in the long process to fix the dams. Prior to this, the tribes' only recourse was to take the agencies into court. A lot of money went to lawyers and solutions were not optimum. This negotiated settlement is hopefully a turning point, all the stakeholders working together need to

achieve consensus on the needs of the Columbia River, the salmon, and the people. Hopefully this day was a turning point for the better (CRTFC 2008).

Columbia River Accord Signing Ceremony, Michael Marchand, Chairman, Colville Tribes and Ralph Sampson, Chairman, Yakama Indian Nation

11.4 How to do business in a 'boom-and-bust' economy

Tribal businesses and resource harvesting occur in an environment that follows a boom-and-bust cycles. Resource harvesting is dictated by the fickleness of climates and environmental changes that can make natural resources abundant at a time or scarce at other times. So any business venture has to be able to deal with these cycles if it is going to be a viable enterprise. The recent article published in Science Now (Travis 2012) shows how Alaskan Aleuts dealt with a boom-and-bust cycle for their food supplies and kept their ecosystem resilient and increased the diversity of food webs and kept parts of the food chain from collapsing. As Travis (2012) wrote,

> ***"For most of the past 5000 years, the hunter-gatherers known as the Aleuts have lived on Sanak Island off the southern coast of Alaska, surviving on the local fish and***

> ***marine mammals they caught as well as clams and mussels collected in the intertidal zone around their island. Now after constructing some of the most elaborate food webs ever built, a research team has begun to reveal how the Aleuts fit in as a top predator in the island ecosystem. In short, the Aleuts weren't picky eaters, consuming about one-quarter of the different species on and around Sanak Island. But by being such "supergeneralists", the research team suggests, they were likely able to keep the ecosystem stable because they would switch prey when a particular species became endangered, and thus harder to catch or collect."***

The Alaska Aleuts practice survival in a landscape where natural resources, i.e., food, can be abundant or scarce. They would not have this long history in this part of the world if they had not adapted to their environment. This is exactly what businesses need to practice since these conditions are the reality that humans face every day.

Taleb (2012), a former derivatives trader, summarized well in his new book 'Antifragile: Things That Gain From Disorder' how "unexpected events" occur in an unpredictable frequency. He wrote that humans need to "learn to benefit from disorder" and design their business models to adapt to these events. He proposes several key rules to "navigate situations in which the unknown predominates and our understanding is limited". His terminology is amazingly similar to ecological terms for how societies adapt to a scarcity of knowledge (see Box 13).

The key rules he introduces (Taleb 2012) are similar to what we have presented throughout this book. Our approaches and portfolio evolve from a cultural and ecological perspectives and where where we overlay tribal governance and business attributes. It is worth repeating a section of Taleb's (2012) article since it closely matches points that we have also been making:

Rule 1: Think of the economy as being more like a cat than a washing

machine

We are victims of the post-Enlightenment view that the world functions like a sophisticated machine, to be understood like a textbook engineering problem and run by wonks. In other words, like a home appliance, not like the human body. If this were so, our institutions would have no self-healing properties and would need someone to run and micromanage them, to protect their safety, because they cannot survive on their own.

By contrast, natural or organic systems are antifragile: They need some dose of disorder in order to develop. Deprive your bones of stress and they become brittle. This denial of the antifragility of living or complex systems is the costliest mistake that we have made in modern times. Stifling natural fluctuations masks real problems, causing the explosions to be both delayed and more intense when they do take place. As with the flammable material accumulating on the forest floor in the absence of forest fires, problems hide in the absence of stressors, and the resulting cumulative harm can take on tragic proportions.

Rule 2: Favor businesses that benefit from their own mistakes, not those whose mistakes percolate into the system.

Some businesses and political systems respond to stress better than others. The airline industry is set up in such a way as to make travel safer after every plane crash. A tragedy leads to the thorough examination and elimination of the cause of the problem. The same thing happens in the restaurant industry, where the quality of your next meal depends on the failure rate in the business—what kills

some makes others stronger. Without the high failure rate in the restaurant business, you would be eating Soviet-style cafeteria food for your next meal out.

Rule 3: Small is beautiful, but it is also efficient.

Experts in business and government are always talking about economies of scale. They say that increasing the size of projects and institutions brings costs savings. But the "efficient," when too large, isn't so efficient. Size produces visible benefits but also hidden risks; it increases exposure to the probability of large losses.

Rule 4: Trial and error beats academic knowledge.

Things that are antifragile love randomness and uncertainty, which also means—crucially—that they can learn from errors. Tinkering by trial and error has traditionally played a larger role than directed science in Western invention and innovation. Indeed, advances in theoretical science have most often emerged from technological development, which is closely tied to entrepreneurship. Just think of the number of famous college dropouts in the computer industry.

Rule 5: Decision makers must have skin in the game.

At no time in the history of humankind have more positions of power been assigned to people who don't take personal risks. But the idea of incentive in capitalism demands some comparable form of disincentive. In the business world, the solution is simple: Bonuses that go to managers whose firms subsequently fail should be clawed back, and there should be additional financial penalties for those who hide risks under the rug. This has an excellent

precedent in the practices of the ancients. The Romans forced engineers to sleep under a bridge once it was completed.

Today, US citizens continue to use the European system and perspective to make decisions, but this needs to change. Lots of tribal systems are broken or in disarray because they dropped their traditional ideas and culture to become “civilized”.

Many documentaries that cover Indian history in a nutshell mention several themes that tribes are still addressing. The first theme was there were warfare and a disease period that killed millions of Indians. Then there were changing policies. They wanted to remove Indians from the lands for the incoming immigrants. They wanted to assimilate Indians. They did this by breaking up families by sending kids to boarding schools and also by kidnapping kids and putting them into foster homes and adoptions. They had programs to relocate Indians into urban areas, the hope was that they could lose them into the cities. Then there was a move to terminate the land bases, the entire reservations, several tribes were terminated. Throughout all of this there were protests and movements internal to the tribe trying to fight the policies, sometimes there was violent confrontations and armed conflict. IN more recent years, there was a movement called Self Determination, to give more governing and administering authority to the Indians themselves.

The traditional people have been sort of on the fringe throughout all of this "progress". They have been bypassed largely and this was their choice too. They contributed at times to the foundation of what they experienced or were forced to experience. They also have maintained a

foundation that was informed by their traditional knowledge to guide the future decisions that were quite often made. Though there is often a tension between the traditional factions and the more modern factions in Indian lands. A new form of Indian culture will emerge and is emerging, a synthesis of the old and the new but this is a work in progress. We are right in the middle of it right now.

11.5 Essential tribal leadership through partnerships, governance and sovereignty

All elements of the Native American sustainability toolkit – maintaining their connection to nature, making practical and realistic decisions, following a Native American business model and creative governance from consensual flexible partnerships – were practiced by the Tulalip Tribes as they transformed and diversified their tribal economy. This transformation was helped by gaming revenues that then allowed the development of the Quil Ceda Village on tribal lands. Many Tulalip Reservation leaders played instrumental roles in building the Quil Ceda Village. "Quil Ceda's structure derives from the efforts of a number of people, including, perhaps most centrally, current Village Director John McCoy and Tulalip attorney Michael Taylor" (John McCoy is no longer the Village Director) (Gardner and Spilde 2004). We are focusing on John McCoy's story and his role in the building of the Quil Ceda Village for our book.

Historically, tribes in the Tulalip reservation were commercial fisher people. Gardner and Spilde (2004) wrote how "the main source of revenue for the Tulalip tribal government came from commercial fishing under the Treaty and from leasing reservation land to non-Indians."

Maintaining a robust fishing industry as the core economic activity to develop the tribal economy is not realistic and tribal leadership recognized this. The 1974 Boldt decision gave tribes rights to harvest half of the salmon in Washington and to co-manage salmon fisheries. But fishing is not the success story that will develop the economy of the Tulalip Tribes. Fishing was already becoming less viable by the mid-1980s when "130 tribal members were licensed to fish,…30 members licensed today" (Gardner and Spilde 2004). Fishing is still an important part of the cultural activities of the Tulalip Tribes even though it is not their main economic activity. Developing tribal economies means a diversification of tribal economies and a shift away from their historical and cultural practices. How this happened is story that is worth telling. The Tulalip Tribes provide an excellent case study of what can be done if essential leadership and adaptive leaders are given the authority to develop a new model of economic development.

The transformation of the Tulalip Tribes economic core from a fisheries focus to a diversity of economic opportunities is a story of success where this tribe balanced its sovereignty and cultural values with economic development. The first challenge the tribe faced was the need to design "an effective legal and political blueprint for the commercial center" that was to become the Quil Ceda Village (Gardner and Spilde 2004). This legal and political blueprint for how a sovereign tribe could collaborate with a state, in this the State of Washington, and retain their sovereignty as negotiated in treaties with the federal government did not exist at this time. The Tulalip Tribes had no blueprint or model that they could follow to build their commercial center. No tribe had attempted to develop and collaborate with a state government to diversify their economic base on tribal lands.

Forging collaborations with non-tribal entities and non-federal agencies to develop and diversify tribal economies appears to be simple on the surface to accomplish. But it is not. Even though tribes have abundant and diverse portfolio of resources on reservation lands, the non-Indian communities are acutely aware of and want to have a say on what happens on tribal lands since they feel that it will impact their revenue generation potential from natural resources. Since tribes have rights to collect many customary resources from their ceded lands, conflicts have been the norm with non-Indians who are in businesses consuming these same resources and communities whose services are funded from resources collected from state trustee lands. Much of Washington state Department of Natural Resources (WA DNR) land are former ceded lands that used to belong to tribes. These lands are now held in trust for other beneficiaries such as schools, Universities, and rural community services. Therefore WA DNR has a primary fiduciary responsibility to other stakeholders who are not tribal. These other stakeholders maintain pressures on WA DNR to satisfy their trustee responsibilities since these revenues are used to support school and hospitals.

Resource conflicts became especially confrontational starting in the mid-1990s when the environmental communities were successful in reducing the amount of timber to be cut from state forest lands held in trust and managed by the Department of Natural Resources (DNR) in Washington State. Trust lands are used to fund schools and Universities; to fund repairs to buildings in the capital – Olympia – of Washington State, and to fund other critical needs of state institutions and local services provided at the county level (DNR 2012). This funding model is a legacy of the fact that the US federal government did not have enough money to fund state institutional structures and operations. Therefore, many western states that joined the union were

given lands abundant in natural resources that they were supposed to sell to generate the funds they needed to operate. Today, rural communities continue to be directly impacted by any change to the level of funding provided from these trust lands since these fund pay for basic services. One of the authors (KV) attended many DNR Board of Natural Resources meetings in 2000 where rural community or business representatives aggressively lobbied DNR to increase its harvesting of timber so DNR could meet their trustee responsibilities.

This funding model creates an environment where it is difficult to create collaborative partnerships for how to manage natural resources. There are too many competitive demands on the same resources so someone has to be a loser. Gardner and Spilde (2004) summarize well the conflicts that erupted between Indian and non-Indian fishers,

> ***"Tribal-state relations quickly deteriorated and acts of violence by non-Indian fishermen against Indian fishing camps erupted. Local press coverage only exacerbated the acrimony between non-Indians and Indians….The contention leading up to the Boldt litigation and the frictions that followed the decision set a lasting combative tone for relations between many Indians and non-Indians and between some tribal governments and neighboring communities in the state."***

Within the last year or two, WA DNR has been interacting with tribes on how a state agency can collaborate with them to allow tribes to access resources from their ceded lands. Whether this is possible is questionable since the state has other fiduciary responsibilities to multiple stakeholders. This becomes especially problematic during cycles of economic down turn when rural communities are unable to maintain basic services in the community. They do not have other sources of funding to support communities facilities and institutions. The typical approach in the past was to take WA DNR into litigation instead of collaborating on how to 'divide up' rich natural resources. This is part of the boom-and-bust cycles that are common in rural areas and

where the economies are insufficiently diversified to adapt to the down-turns in these cycles.

Therefore building tribal business enterprises is a complicated problem where a tribe has to form partnerships with non-tribal entities that do not live on a reservation but are customers for resources and products produced by tribes. The state government is an especially important institution for the tribes to collaborate with because of their role in levying taxes and providing services at the county level. However, tribal interactions are government to government and tribal lands are held in trust by the federal government for the tribes. Tribes made and signed treaties with the federal government and not state governments. Therefore it is very unusual to partner with a state government.

Tribes have also faced a long history of non-Indian developers contesting any activities that tribes want to develop and placed tribes in a unique situation of "contention concerning the development of natural resources within tribes, and between tribes and the state. Because of these diverging interests, the history of tribal-state relations in Washington has tended toward litigation rather than negotiation." (Gardner and Spilde 2004). According to Gardner and Spilde (2004), a key turning point occurred when the Washington state government was willing to collaborate with tribes on the "passage of the Indian Gaming Regulatory Act (IGRA) in 1988" … since it did 'force state governments into partnerships with tribal governments." As part of the Act, tribal governments were forced to negotiate a "compact" with state governments.

Of the 32 tribes in Washington, Tulalip Tribes is the only tribe that developed their commercial enterprises by forging a collaboration and partnership with the Washington state government to

develop the Quil Ceda Village. It is a story that would not have happened if any of the collaborators would have been unwilling to cross artificial and real boundaries. It required a healthy dose of trust by the tribes since historical interactions had been decidedly one sided and where mostly tribes lost land, lost their customary lands and ability to make their own decisions (see Battles to eliminate Native American traditions and culture).

For the Tulalip Tribes, building a collaborative partnership with the state was possible because of tribal leaders who were willing to forge deals with non-tribal entities as long as they did not impact tribal sovereignty. Leaders in this context have to be able to balance the western world demands without threatening Tulalip Tribes sovereignty. This is the story of one of these leaders – John McCoy – who not only has been a tribal leader but holds a legislative position in Washington's 38th District (see 2. Stories of REAL Indians). Several other leaders were also important in providing leadership but we are focusing on one person's story.

11.6 One tribal business model: Tulalip Tribes building a federal city as told by John McCoy, Tulalip Tribes

As recounted by John, the Tulalip story starts with a vision held by tribal elders since the 1960s that something was going to happen on the north border of the Tulalip reservation. Their vision was the building of a big trading post. This vision by the elders is interesting since today the Quil Ceda Village exists on this land and it is modern day trading post with 'outlet malls', a casino, gas station and restaurants. This of course is getting ahead of the story since this land was occupied and leased by Boeing Aerospace Industries before the Village was built. A trading post could not be built on this land as long as Boeing had a lease to it. The tribal Board wanted

Boeing to leave the reservation land before their 2001 lease expired; Boeing also had a 10 year lease option after 2001 on this same piece of land. This task of negotiating with Boeing was given to John who had only been on the job for two weeks after leaving Unisys (see 2. Real Indian stories). He was also asked to negotiate with Boeing for them to leave this land two years earlier than the expiration date of the Boeing lease.

John started negotiating with Boeing but quickly realized that he needed to transition back to being an Indian if he was going to speak for the tribes and present the tribal case to non-Indians. His 20 plus years in the US Air Force, and working for computer industries outside of the reservation, gave John the knowledge and tools for how to speak like a white person. Now he needed to be able to speak Indian to talk to tribal members and speak like a white person so he could talk to Boeing. He needed to relearn how to speak Indian and to change how he dressed. The biggest challenge for John was to work on the 'language' - to speak like an Indian. John had help from his cousin on learning to speak Indian. Every time John used a word that his cousin did not understand, he would throw a nickel at him. It didn't matter where they were, a nickel would fly through the air and hit him when John spoke a word that his cousin did not. John learned quickly to not have nickels thrown at him. He succeeded in thinking about his vocabulary and how to speak white and how to speak Indian.

Now John was able to talk to the tribe but also to the federal government and also the state that infringed on tribal sovereignty. Next he figured out that it was better not to go to the courts if he could resolve the problems before that stage. At this point, John decided that it was better to lobby Olympia instead of dealing with these issues in the courts. While lobbying Olympia

legislators, John needed to deal with reservation projects to sustain the Tulalip business enterprises since that was his job. John also recognized that it was very important to keep non-tribal impacts from derailing tribal business projects.

The key to all of this was to make sure that whatever activity occurred that it always flowed from tribal sovereignty to tribal economic development. As long as sovereignty was satisfied, the economic development activities worked for the tribe. Since the state and county level connections could destabilize economic development of the tribe, it was critical to form different sustainable governance and economic development models for the tribe that was compatible with non-tribal governance.

At the same time it was important to develop the human capacity side of the tribe. He needed to transform tribal business practices. Documents were written that established the rules for how business would be conducted that differed from the traditional tribal business practices. Now, management would not come down on you if you played by the rules that were written down. Before this time, tribe had too many rules that were unwritten so the power rested in the employee. By rewriting the human resources manual and getting the tribal approval of these new rules, it established a set of rules on how governance would be implemented. Many tribal members were not happy with these changes and wanted to terminate John's contract. But he survived and his ideas survived. These rules made it where you showed up for work and you had to produce when you were working. This was a very different environment since the Tulalip's prior work had been in fishing which doesn't work like a business. It was no longer an issue of knowing the tides but many other factors that determined how well you were able to work in

your job. This required tribal members to shift to a very different work ethic. It was a big cultural shock for some tribal members.

At the same time, it was not very clear when the state or tribe regulated legal or illegal activities occurring on tribal lands. When conflicts occurred between tribal and non-tribal organizations, who decided what actions were legal and who had jurisdiction over these activities? Were non-tribal organizations the decision-makers or did the tribes have rights on deciding on punishment of tribal members who broke the laws? The question of when it is the pervue of non-tribal organizations to judge and to evaluate the legal ramifications of what tribes did or did not do on tribal lands was important to settle. No business could be successful with regulatory uncertainty. Who had the legal right to decide what happened on tribal lands?

Who had sovereignty when tribal members broke the law – was it tribal courts or the non-tribal courts. These questions arose to forefront of the legal debates when one day John was driving his car on the reservation and did not come to a complete stop at a stop sign. A Snohomish county sheriff happened to be at the scene and saw that John had not come to a complete stop before driving through the stop sign. He gave him a ticket for not stopping. John was going to write a check and pay the ticket at a non-tribal court. However, Mike Taylor – Tulalip attorney - told him not to do anything until he told him what to do. John wondered how he knew that he had gotten a ticket but he would not answer him. Mike told John that he finally had a case that he could go to the courts related to who had rights and jurisdiction on what happened on tribal lands. This is when John was introduced to Public Law 280. Mike won the case and the court decided that John's infraction was a civil offense and should go to the tribal court and not the

Snohomish county court. This clarified the sovereignty rights of tribes and who had jurisdiction over tribes when legal infractures occurred.

Next John needed to figure out how to build the community infrastructure that was essential for building business on the reservation. This was an expensive option but something that was needed if any businesses would have a realistic chance of succeeding. After 1996-97, the Tulalip Tribes recognized the need to upgrade their phone system on the reservation. John forged collaborative partners between educational institutions and the Tulalip Tribes to assess and design what was needed on the reservation. The internet was not available on the reservation but was needed if the tribe was to develop its economies. John was told it was not economical to develop tribal communication infrastructures. Instead of John accepting this statement, he decided to forge novel and new collaborations with community colleges to have students assess and design the communication systems and its implementation. John approached Everett Community College in 1999 and asked students how to bring technology to the reservation. At the Everett Community College, electrical engineers and computer science majors designed the technology that would work on the reservation. They wrote the concept paper. John then included UW Bothell as part of the proposal writing activities. All these collaborations helped develop a proposal for moving this forward.

Tribal electives heard about the student plans on how to automate reservation communication systems and how much savings would accrue from following this plan. The tribal Board approved the proposed plan and provided $300,000 to conduct a more thorough assessment of the plan. This assessment was done by the UW Bothell and Everett Community College

students. The tribe opened its doors to these students who roamed all over the reservation during their assessment.

As part of this strategy, every five weeks a meeting was held at UW Bothell to give a debriefing. This allowed suggestions to be made and course correction to be made. During this time, John realized how serious the students were in providing this feedback and the strength of the tribal and non-tribal collaborations that had formed. At that time, John found out that he had a mannerism that he was not aware off. As the students were presenting their briefing, John would ask a lot of questions. Whenever John was going to ask a question or make a comment, he would run his hand across his face. One day, a female student fell to the floor because she was crushed that John had run his hand across his face after her debriefing.

These students were important in laying the foundation for implementing the programs to get fiber optics installed on the reservation lands. They designed strategies to get the communication network set up on the Tulalip reservation that were synergistic with non-tribal collaborators. This is an excellent example of consensual governance where a tribe did not pursue solutions in isolation from non-tribal entities. Today the entire reservation and the Village have their own telephone company and internet company who manage communications on the reservation.

We need to go back to the Boeing story to finish how Quil Ceda Village was built. John was instructed by the Board to get Boeing to give up their lease on this northern corner of the tribal lands that would ultimately become the Quil Ceda Village. The Army originally had the lease on Tulalip reservation but this lease was transferred to Boeing by the Army. There is no

documentation of why this transfer occurred when the Army gave up their lease. These lands were important testing sites for Boeing. They tested the damage that would occur when birds flew into airplane windows. They would shoot live chickens into the wind shields of aircraft to test what kind of damage would occur to airplanes at this impact. They tested how the three stages of the rocket boosters separated before they sent John Glenn into space. When Boeing bought McDonnell-Douglass, all the negotiations that John had worked on were put on hold. Finally Boeing gave up its lease and even left two years earlier than when the lease expired.

Once Boeing left, the tribe needed to figure out what to do with this land. Mike Taylor came up with the idea of converting this land into a federal city just like Washington DC. This is what happened and today there are only two federal cities – Washington DC and the Quil Ceda Village. The Village structure allowed the Tulalip Tribes to give leases to non-tribal businesses. It defined the permitting process and made it clear what needed to be done by the tribe. The only problem that arose was that any activity occurring in this Village would be under the jurisdiction of the tribal courts. Some of the non-tribal businesses did not originally like this but it has not created a problem for the Village.

The Tulalip Tribes still needed to figure out how their federal city or Village could produce a tax base that would support its activities. For this Village to be sustainable, it needed its own tax base according to John. Students identified that any economic enterprise needed to satisfy certain factors for it to work for a tribe:

- It has to be on trust land
- It could not do anything under the authority of the state and had to be federal
- It had to be run by the tribes.

The Tulalip Tribes to date has not been able to produce a tax base from the Village. The State and County are able to do a lease hold tax on assets in the buildings. The tribes said that they should not be able to do this since it is on tribal lands. The tribes are still not able garner any portion of the state and county tax on businesses on tribal lands. The tax situation may finally be changing since the end of November 2012, the federal government made a tax decision that is beneficial to the tribes. The decision preempts the county and state from assessing a lease hold tax in lieu of a property tax on tribal trust lands. This decision may finally allow the Tulalip Tribes to produce a tax base from the Village.

The tribe committed to building the supportive infrastructure needed by the businesses located at the Village which they have provided. Despite not acquiring a tax base from the Village, there have been many other benefits of building the Village for both the tribes and also the adjacent non-tribal communities. This part of Washington has now become an attractive tourism destination because of what tribes built on this land. It supports the local economy (Gardner and Spilde 2004). It has also provided considerable employment opportunities for tribal members, mostly in the higher paying jobs found in the casino, so it is helping to alleviate the high unemployment found on many tribal lands.

The development of the communication network on Tulalip reservation and the building of the Village happened because of tribal leaders who practiced the rules that we have articulated in our portfolio. Without these practices, the Tulalip Tribes would have found it more difficult to develop their economies. The communication network was needed to support the business enterprises that became part of the Village. It also required leaders who were ‘renaissance’

leaders - as defined by the old European idea of someone who was able to think out of their cultural framework, have knowledge of all of the classics that make you a highly civilized and a cultural person, and is able to connect and speak in two different worlds. It needs leaders able to think out of the box. It also requires people who are willing to have a conversation with those who are not in their cultural group. It needs progressive tribal leaders who are able to recognize the past but do not focus on a vendetta that 'throws out the baby in the bath water' without acknowledging that all people have something to contribute to societal resilience. It also requires non-tribal people to be willing to talk to tribal people. This type of person recognizes that it is okay to make mistakes but not to repeat mistakes. It takes progressive leaders who surround themselves with smart people and then manage them. It doesn't take a leader who thinks they are the only smart person in the room. It also does not do well if the decision process becomes bureaucratic and therefore non-adaptive. This requires people who do not give up their cultural norms but are able to balance their cultural roots with those of other societies. This allows them to adopt and adapt to a world that is dynamic and volatile.

This is where John McCoy excelled. His ability to operate in both worlds and to solve problems in both worlds was crucial. He recognizes that many of the bills being worked on in the Washington legislature also impact tribes. By being elected to his Washington legislative position, he is able to educate his fellow legislators on tribal sovereignty and make suggestions when problems arise. He also is able to balance the demand from the tribes and non-tribal stakeholders so that no one side dominates how he makes decisions. He has looked for solutions in both worlds instead of relying on just one world.

References:

Adair, Janice and S Reeder. 2009. Focus on Impacts of Climate Change in Washington State. Publication Number 09-01-006, http://ecv.wa.govclimatechange/economic impacts.htm

Adams DW. 1995. Education for Extinction - American Indians and the Boarding School Experience 1875-1928, University Press of Kansas, Lawrence, Kansas, 1995

Alexander, C., N. Bynum, et al. (2011). "Linking indigenous and scientific knowledge of climate change." BioScience 61: 477-484.

Alter A. 2012. Your E-Books Is Reading YOU. Wall Street Journal June 20, 2012. Page D1-D2.

Anderson MK. 2006. Tending the Wild: Native American Knowledge and the Management of California's Natural Resources. University of California Press; February 22, 2006

Anderson, K. M. Traditional Ecological Knowledge: An Important Facet of Natural Resource Management. NRCS United States Department of Agriculture and Natural Resource Conservation Services, Accessed online source November 28, 2009: http://npdc.usda.gov/pdf/0105_tek_report.pdf

Antweiler, C. (1998). "Local knowledge and local knowing: An anthropological analysis of contested "cultural products" in the context of development." Anthropos 93: 469-494

*Archdale John. 1707 "*A new description of that fertile and pleasant province of Carolina : with a brief account of its discovery, settling, and the government thereof to this time. With several remarkable passages of divine providence during my time. J. Wyat, London.

Armannsson, H. and Fridriksson, T. (2008) Jarðhiti og gróðurhúsaoftegundir: náttúruleg losun, losun vegna vinnslu og binding koldíoxíðs í bergi. Icelandic Geosurvey annual meeting March 28/2008 Akureyri, Iceland.

www.isor.is/pdf/ársfundarerindi%202008%20ÍSOR%20HÁ%20ÞF.pdf, accessed 09/09/09.

Arnórsson, S. (2009) Háhitasvæði: Umhverfisáhrif – sjálfbær nýting. 13th meeting of the Ministry of environment and Institute for Sustainability Studies, Reykjavik, Iceland, May 6th, 2009. www.ssf.hi.is/Apps/WebObjects/HI.woa/swdocument/1015037/Stefnumot_13_StefanArnorsson.pdf, accessed 09/09/09.

Axelsson, G., Stefansson V. and Björnsson, G. (2005) 'Sustainable utilization of geothermal resources for 100-300 years', Proceedings World Geothermal Congress 2005, Antalya, Turkey, 24-29 April 2005.

Baker. 2009. L.A. Baker (ed.), *The Water Environment of Cities*, DOI 10.1007/978-0-387-84891-4 1, C _ Springer Science+Business Media, LLC 2009

Beach A. 1896. The Gaelic Symphony. Piano Concerto.

Benjamin Franklin. Poor Richard's Almanack (1746). *Poor Richard's Almanac* (English) - 1746 - Franklin, Benjamin (author) - Philadelphia - American Philosophical Society. *Poor Richard, 1733. Almanack For the Year of Christ 1733* (Philadelphia: Printed and Sold by B. Franklin, [1733]). Historical Society of Pennsylvania.

Berkes, F. (1999). Sacred ecology: traditional ecological knowledge and resource management. Philadelphia, PA, Taylor & Francis

Berry, Joyce K. and Gordon, John C. 1993. Environmental Leadership: Developing Effective Skills and Styles. Island Press, Washington DC

Bertani, R and Thain I. (2002) 'Geothermal power generating plant CO2 emission survey', IGA News, vol 49, pp1-3, http//iga.igg.cnr.it, accessed 09/09/09.

Bhattasali, A. 2006. A silent killer of rural women. Calcuta, India: BBC, 2006. http://news.bbc.co.uk/2/hi/south_asia/4308983

BIA 2012. Frequently Asked Questions. Saturday July 28, 2012. BIA Website: http://www.bia.gov/FAQs/index.htm.

Bloch M. 1953. The Historian's Craft. Vintage Books. Division of Random House. New York.

Bloomfield, K. K., Moore, J. N. and Neilson, R. N. (2003) 'Geothermal energy reduces geothermal gases', Geothermal Resources Council Bulletin, vol 32, pp77-79.

Bonnicksen, T., Anderson, K., Lewis, H., Kay, C., & Knudson, R. (1999). Native American Influences on the Development of Forest Ecosystems. In R. C. Szaro, N. C. Johnson, W. T. Sexton, & A. J. Malk (Eds.), *Ecological Stewardship: A common reference for ecosystem management* (Vol. 2, pp. 439-470). Oxford, UK: Elsevier Science Ltd.

Carpenteria, Matteo, Corti A., Lombardi, L. 2005. Life Cycle Assessment of an integrated biomass gasification combined cycle (IBGCC) with carbon dioxide removal. Energy Conservation and Management, 46 (2005) 1790-1808

CBO. 2006. How Federal Policies Affect the Allocation of Water. The Congress of the United States O Congressional Budget Office. August 2006. //www.cbo.gov/sites/default/files/cbofiles/ftpdocs/74xx/doc7471/08-07-waterallocation.pdf

Cooley H & PH Gleick. 2011. Climate-proofing transboundary water agreements. *Hydrol Sci. J.* 56(4), 711-718.

Cosens, B. (2010) Transboundary river governance in the face of uncertainty: resilience theory and the Columbia River Treaty. J Land, Res Environ Law **30**, 229–265.

//www.epubs.utah.edu/index.php/jlrel/article/viewFile/333/273, accessed 13 October 2012.

Craven K. 2012. Native spirituality today. Seattle Times. 12 November 2012. A12 News.

CRITFC (Columbia River Inter-tribal Fish Commission). 2012. Columbia River Treaty Tribes. http://www.critfc.org/text/tribes.html (accessed 10/8/12)

CRITFC, *Columbia Basin Fish Accords Ceremony,* http://critfc.org/chp/signing.html

David Wallace Adams, *Education for Extinction - Native Americans and the Boarding School Experience 1875-1928*, University Press of Kansas, Lawrence, Kansas, 1995.

David Wallace Adams, Education for Extinction - Native Americans and the Boarding School Experience 1875-1928, University Press of Kansas, Lawrence, Kansas, 1995.

de Blij, H. (2005) Why Geography Matters. Three Challenges Facing America. Climate Change, The Rise of China, and Global Terrorism, Oxford University Press, Oxford, UK

de Saint-Exupéry Antoine. 1943. The Little Prince. Gallimard, France and Reynal & Hitchcock, USA.

Diamond, J. (2005) *Collapse: How Societies Choose to Fail or Survive*, Penguin Group, New York

Dickson, M. H. and Fanelli, M. (2004) 'What is Geothermal Energy', International Geothermal Association, //iga.igg.cnr.it/geo/geoenergy.php, accessed 09/09/09.

Dininny S. 2008. Lake Roosevelt drawdown approved by state. Seattle Times 26 September 2008. //seattletimes.com/html/localnews/2008204557_columbia26.html, accessed 15 September 2012.

DNR. 2012. Trust Land Transfer Program Description.

http://www.dnr.wa.gov/Publications/amp_11_13_tlt_final_proposal_book.pdf, accessed 9 December 2012.

Dowaki, Kiyoshi, Mori,S.,Fukushima, C., and Asai,N. 2005. A Comprehensive Economic Analysis of Biomass Gasification Systems. Electrical Engineering in Japan, Vol., 153, No.3, 2005

Echohawk WR 2010. In the Courts of the Conqueror: The 10 Worst Indian Law Cases Ever Decided, Fulcrum Publishing, Golden, CO, 2010, @ p 16

Edwards C. 2012. Indian Lands, Indian Subsidies, and the Bureau of Indian Affairs. CATO Institute. February 2012.

Efla (2009) Rannsóknir á mosa við jarðvarmavirkjun Orkuveitu Reykjavíkur á Hellisheiði. Orkuveita Reykjavíkur, Reykjavik, Iceland 41p. http://www.or.is/media/zips/Mosaskemmdir.zip accessed 09/09/09.

Environmental ministry (2009) umhverfisraduneyti.is/frettir/Ymislegt_forsida/nr/1435 Accessed 09/09/09.

Etymonline. 2012. Indian. //www.etymonline.com/index.php?allowed_in_frame=0&search=Indian&searchmode=none, (accessed 7/17/12)

Federal Register. 2008. Tribal Energy Resource Agreements Under the Indian Tribal Energy Development and Self-Determination Act: Final Rule. March 10, 2008. http://64.38.12.138/FederalRegister/2008/03/101/e8-4301.asp

Finn H. 2012. ET; How to End the Age of Inattention. Could a Yale program for doctors help everyone pick up on the details? By HOLLY FINN. WSJ. June 1, 2012, 3:48 p.m.

Fridleifsson, I. B. (2001) ‘Geothermal energy for the benefit of the people’, Renewable and

Sustainable Energy Reviews, vol 5, pp299-312.

Fridleifsson, I. B., Bertani, R., Huenges, E., Lund, J. W., Ragnarsson, A. and Rybach, L. (2008) 'The possible role and contribution of geothermal energy to the mitigation of climate change', in O. Hohmeyer and T. Trittin (eds), IPCC Scoping Meeting on Renewable Energy Sources, Proceedings, Luebeck, Germany, 20-25 January 2008.

Fuchs, M.R. and Frear, C. et al. Biomass Inventory and Bioenergy Assessment: the evaluation of organic material resources for Bioenergy Production in Washington State. Dec.2005. Publication No.05-07-047, DOE, Olympia. http://www.ecy.wa.gov./biblio/0507047.html

Gardner L and KA Spilde. 2004. Harnessing resources, creating partnerships: Indian Gaming & diversification by the Tulalip Tribes of Washington. The Harvard Project on American Indian Economic Development. April 2004. Malcolm Wiener Center for Social Policy, John F. Kennedy School of Government, Harvard University.

Gardner L and KA Spilde. 2004. Harnessing Resources, Creating Partnerships: Indian gaming & diversification by the Tulalip Tribes of Washington. The Harvard Project on American Indian Economic Development. Malcolm Wiener Center for Social Policy, John F. Kennedy School of Government, Harvard University. April 2004.

George LJ. 1997. Why the need for the Indian Welfare act? Journal of Multi-Cultural Social Work 5, pp. 165-175.

George W. 2011. Coyote Finishes the People: A collection of Indian coyote stories,new & old, telling about the evolution of human consciousness. CreateSpace Independent Publishing Platform.

Gislason, S.R. Oelkers, E.H. and Snorrason, A. (2006) 'Role of river-suspended material in the global carbon cycle', Geology, vol 34, pp49–52.

Gleick PH, G Wolff, EL Chalecki, R Reyes. 2002. The New Economy of Water. The Risks and Benefits of Globalization and Privatization of Fresh Water. February 2002. Pacific Institute. www.pacinst.org/reports/new_economy_of_water/new_economy_of_water.pdf

Gleick PH. 1993. Water and Conflict. Fresh Water sources and International Security. International Security 18 (1): 79-112.

GLP. 2005. Science Plan and Implementation Strategy. IGBP Report No. 53/IHDP Report No. 19. IGBP Secretariat, Stockholm. 64 pp.

Gordon J. 1993. Ecosystem Management: An Idiosyncratic Overview. P. 240-244. In: (Aplet GH, Johnson N, Olson JT, Sample VA, eds.) Defining Sustainable Forestry. Island Press. Covelco, California.

Gordon JC and JK Berry. 2006. Environmental Leadership EQUALS Essential Leadership. Redefining Who Leads and How. Yale University Press. New Haven and London.

Gover K. 2000. An Apology. Remarks of Kevin Gover, Assistant Secretary-Indian Affairs, Department of the Interior at the Ceremony Acknowledging the 175th Anniversary of the Establishment of the Bureau of Indian Affairs. September 8, 2000. http://www.tahtonka.com/apology.html, accessed 7/22/12

Hall RL. 1991. THE COQUILLE INDIANS: Yesterday, Today and Tomorrow.

HDI (2007/2008) 'Human Development Index', //hdr.undp.org/en/statistics/, accessed 1 October 2008

Henricks. 2012. Interviewed by Mark Henricks for article he wrote entitled "Analysis of recent disasters shows most debris not recycled", American Recycler, http://www.americanrecycler.com/0512/1518analysis.shtml, 4/10/1

Hönnun (2002) 'Stækkun Norðuráls á Grundartanga. Environmental Impact Assessment',

Reykjavik, Iceland, www.mannvit.is/media/files/nordural_staekkun_300.pdf, accessed 09/09/09.

Hreinsson, E.B. (2007) Deregulation, environmental and Planning Policy in the Icelandic Renewable Energy System. International Conference on Clean Electrical Power (ICCEP), Capril Italy 21-23 May 2008, pp283-290.

Huntington, H. P. (2000). "USING TRADITIONAL ECOLOGICAL KNOWLEDGE IN SCIENCE: METHODS AND APPLICATIONS." Ecological Applications 10(5): 1270.

Icelandic Energy Marketing Unit (1997) 'Lowest Energy Prices', Reykjavik, Iceland, pp15, //nemendafelog.hi.is/Gaia/Articles/Lowest_energy_prices_Iceland.pdf, accessed 11/29/09.

Indian Self-Determination and Education Assistance Act. 1975. Public Law 93–638. http://tm112.community.uaf.edu/files/2010/09/Self-DeterminationAct-19751.pdf, accessed 7 September 2012.

Indianz, *Griles to Be Sentenced for Lying About Abramoff,* June 26, 2007, http://www.Indianz.com/News/2007/003607.asp

Institute of economic studies (Hagfræðistofnun Háskóla Íslands) (2009) Áhrif stóriðjuframkvæmda á íslenskt efnahagslíf (economic impacts of energy intensive industry development in Iceland). Ministry of Industry, Reykjavik, Iceland. 100pp, //www.idnadarraduneyti.is/media/Rafraen_afgreidsla/2009-07-ahrif-storidjuframkvaemda-isl-efnahagslif.pdf, accessed 09/09/09.

International Council on Clean Transportation (2007) 'Air Pollution and Greenhouse Gas Emissions from Ocean-going Ships: Impacts, Mitigation Options and Opportunities for Managing Growth', www.theicct.org/documents/MarineES_Final_Web.pdf, accessed 09/09/09.

Jackson A. 1830. Second Annual Message to Congress, 6 December 1830.

Jackson RB, SR Carpenter, CN Dahm, DM McKnight, RJ Naiman, SL Postel and SW Running. 2001. Water in a Changing World. Issues in Ecology. ESA. Number 9, Spring 2001.

Jacques, M. (2009). When China rules of the world: The end of the Western World and the birth of a new global order. New York, The Penguin Press

Jóhannsson, M., Jónsson, B. and Guðjónsson, S. (2008) 'Fiskirannsóknir á vatnasvæði Þjórsár. Samantekt rannsókna árin 2003 til 2007', Landsvirkjun, Reykjavik, Iceland, LV-2008/066 //thjorsa.is/assets/files/skyrslur/fiskrannsoknir_thjorsa_2003-2007.pdf, accessed 09/09/2009.

Kaufman L. 2012. When babies don't fit plan, question for zoos is, how what? The New York Times. 8_2_12. .www.nytimes.com/2012/08/03/science/zoos-divide-over-contraception-and-euthanasia-for-animals.html?pagewanted=all; accessed 9/ 14/12

Kelly, Regina Anne. 2008. Energy Supply and Renewable Resources. Checkmark Books, NY

Kennett DJ, SFM Breitenbach, VV Aquino, Y Asmerom, J Awe, JUL Baldini, P Bartlein, BJ Culleton, C Ebert, C Jazwa, MJ Macri, N Marwan, V Polyak, KM Prufer, HE Ridley, H Sodemann, B Winterhalder and GH Haug. 2012. Development and disintegration of Maya political systems in response to climate change. Science 338: 788-791.

Kimmerer, R. (2000). Native Knowledge for Native Ecosystems. *Forest Restoration Philosophy* , 4-9

Kirk, R., & Daugherty, R. (1978). *Exploring Washington Archaeology.* Seattle: University of Washington Press.

Krugman, P. (2009) 'How did economists get it so wrong?' *The New York Times Magazine*, 6 September 2009, pp36-43

KPMG (2002) 'Business Costs in Iceland Comparative study of 87 cities in Europe, North America and Japan', www.invest.is/resources/files/invest.is/publications/KPMG_report_2002.pdf, accessed 09/09/2009.

LICWAC, *The Indian Child Welfare Act and Action Efforts,* (PPT), December 10, 2002, Spokane, WA. http://www.socwel.ku.edu/occ/nas

Lu F, Gray C, Bilsborrow RE, Mena CF, Erlien CM, Bremner J, Barbieri A, Walsh Sj. 2010. Contrasting Colonist and Indigenous Impacts on Amazonian Forests. Conservation Biol. 24(3): 881-885.

Magnason, A. S. (2006, 2008) Dreamland: A Self-help Manual for a Frightened Nation, Citizen Press Ltd., London.

Maier P, MR Smith, A Keyssar and DJ Kevles. 2003. A history of the United States. INVENTING AMERICA. Volume 1. WW Norton & Company. New York. London.

Mann CC. 2005. 1491. New Revelations of the Americas Before Columbus. Alfred A Knopf. New York.

Marglin SA. 2009. Why economists are part of the problem. The Chronicle Review. //chronicle.com/weekly/v55/i25/25b00701.htm, accessed March 2 2009.

McKinsey & Company (2012). Charting a Growth Path for Iceland. McKinsey & Company, Copenhagen. http://www.mckinsey.com/locations/Copenhagen/our_work/How_We_Work/~/media/Images/Page_Images/Offices/Copenhagen/ICELAND_Report_2012.ashx (that is if we want the web address).

McNeil Technologies. 2007. Final Report: Colville Biomass Facility Feasibility Study.

Lakewood, CO

McWhorter, Lucullus V. 1940. *Yellow Wolf: His Own Story*. Caldwell, Idaho: The Caxton Printers, Ltd, 1940.

Mehr. 2005. Mehr, Farhang, The politics of water, in, Antonino Zichichi, Richard C. Ragaini, eds., *International Seminar on Nuclear War and Planetary Emergencies*, 30th session, Erice, Italy, 18-26 August 2003, Ettore Majorana International Centre for Scientific Culture, World Scientific Publishing Co. Pie. Ltd., 2004, p.258

Microsoft Encarta Online Encyclopedia 2008, *Native American Policy,*http://Encarta.msn.com. Microsoft Corporation.

Microsoft Encarta. 2000. "Inca Empire," Microsoft® Encarta® Online Encyclopedia 2000

Miller RJ. 2012. Reservation “Capitalism”. Economic Development in Indian Country. Praeger. ABC-CLIO, LLC. Santa Barbara, California, Denver, Colorado, Oxford, England.

Ministry of Environment (2009) ‘Möguleikar til að draga úr nettóútstreymi gróðurhúsalofttegunda á Íslandi‘, Ministry of environment, Reykjavik, Iceland, www.umhverfisraduneyti.is/media/PDF_skrar/Loftslag.pdf, accessed 09/09/2009.

Miscawati M. 2012. Social Movements and Scientific Forestry: Examining the Community Forestry Movement in Indonesia. University of Washington Unpublished Dissertation.

MMS Sex Scandal Arms Anti-Drilling Faction, 9/11/2008, Energy Current-Offshore Oil and Gas News, http://www.energycurrent.com/index.php?id=2&storyid=3056

Moerman, D., E., Native American Medicinal Plants: An Ethnobotanical Dictionary. The medicinal uses of more than 3000 plants by 218 Native American tribes. Timber Press, Inc, Portland OR 2009.

Monticello 2012. Jefferson quotes. www.monticello.org/site/jefferson/quotations-nature-and-

environment, accessed 8_1_12

Morell SF. 2012. Review of Tending the Wild: Native American Knowledge and the Management of California's Natural Resources. Weston A Prize Foundation. www.westonaprice.org/thumbs-up-reviews/tending-the-wild-by-m-kat-anderson

Murner, Thomas. 1512. Narrenbeschwörung or Appeal to Fools. Ex Bibliotheca Gymnasii Altonani. http://simple.wikipedia.org/wiki/File:Murner.Nerrenbeschwerung.kind.jpg

Nash, J.Madeline/Flagstaff.Aug 11, 2003. Fireproofing the Forests.Time. http://time.com.magazine/article/0,9171,1101030818-474575-1,00.html

National Energy Authority (2009) www.os.is/Apps/WebObjects/Orkustofnun.woa/1/wa/dp?id=11627&wosid=b5hWUjp6M6XlXbSItVK0Zw, accessed 09/09/2009.

National Registry of Iceland (Hagstofan) (2009)'Ýmsar upplýsingar', www.hagstofa.is, accessed 09/09/09.

Native American Religions http://www.rodneyohebsion.com/native-american-proverbs-quotes.htm

Ngabut, CY. 1999. Sastra Lisan Suku Kenyah Bakng di Desa Long Apan Baru. In: Eghenter, C and Sellato, B. editors. Kebudayaan dan Pelestarian Alam: Penelitian Interdisipliner di Pedalaman Kalimantan, Jakarta: PHPA – the Ford Foundation – WWF Indonesia, 1999, p. 487-504.

Nichols, Bill. 2001. Introduction to Documentary. Indiana University Press, Bloomington & Indianapolis

NPS. 2012. Yellowstone National Park. History and Culture. *www.nps.gov/yell/historyculture/index.htm*;

www.nps.gov/features/yell/slidefile/history/indians/Images/02726.jpg; www.nps.gov/features/yell/slidefile/history/1872_1918/military/Images/02802.jpg; www.nps.gov/features/yell/slidefile/history/1872_1918/peopleevents/Images/02949.jpg; accessed July 12, 2012.

NW Power Planning Council, *Ceremony of Tears*, http://www.nwcouncil.org/history/images/ceremony.jpg

Objiwa. 2010. National Parks & Native Americans: Yellowstone. www.nativeamericannetroots.net/diary/688/national-parks-american-indians-yellowstone. Accessed July 12, 2012.

OECD (2006) 'Economic Survey of Iceland 2006', //www.oecd.org/document/32/0,3343,en_2649_33733_37216992_1_1_1_1,00.html, accessed 09/09/09.

Ogmundardottir, H (2011) The Shepherds of Þjórsárver.: Traditional Use and Hydropower Development in the Commons of the Icelandic Highland. PhD dissertation, University of Uppsala.

Orkuspárnefnd (Energy Forecast Committee) (2009). 'Raforkuspá 2009-2030', National Energy Authority, Reykjavik, Iceland. //www.os.is/Apps/WebObjects/Orkustofnun.woa/swdocument/34181/Raforkusp%C3%A1+2009-2030.pdf, accessed 09/09/09.

Ortolano, Leonard and Kao-Cushing, Katherine. 2002. Grand Coulee Dam 70 Years Later: What Can We Learn? Water Resources Development, Vol. 18, No.3, 373-390, Carfax Publishing.

Óskarsson, H. and J. Guðmundsson (2008) 'Gróðurhúsaáhrif uppistöðulóna; Rannsóknir við

Gilsárlón', 2003-2006, Landsvirkjun, Reykjavik, Iceland LV-2008/028.

Palmason, G. (1980) 'Jarðhitinn sem orkulind.', Náttúrufræðingurinn, vol 50, pp147-56.

Palmason, G. (2005) Jarðhitabók: eðli og nýting auðlindar. Hið íslenska bókmenntafélag, Reykjavik, Iceland.

Pandey A and PV Rao. 2002. Impact of Globalisation on Culture of Sacred Groves: A Revival of Common, But Decay of the Traditional Institution. Source: http://dlcvm.dlib.indiana.edu/archive/00000896/00/pandeya180402.pdf, accessed 8_6_12

Parker, LS 1989. *Native American Estate: The Struggle Over Indian and Hawaiian Lands*, Univ. of Hawaii Press

Paullin CO and JK Wright. 1932. Atlas of the Historical Geography of the United States. Carnegie Institute of Washington and the American Geographical Society of New York, Washington, D.C.

Payne SB Jr. 1996. The Iroquois Leaque, the Articles of Confederation, and the Constitution. The William and Mary Quarterly 53, pp. 605-620.

Peden W. 1955. Notes on the State of Virginia. University of North Carolina Press, Chapel Hill, North Carolina.

Perla, B.S. The differential impact of protection on social and ecological resilience of mountain and lowland societies in the Skagit watershed, USA. PhD dissertation. University of Washington College of Forest Resources. 211 pp.

Pétursdóttir, S.K., Björnsdóttir, S.H., Ólafsdóttir, S. and Hreggviðsson, G.Ó. (2008) 'Líffræðilegur fjölbreytileiki í hverum að Þeistareykjum og í Gjástykki', Matís report 39-08, Reykjavik, Iceland, www.theistareykir.is/static/files/skyrslur_greinar/2008/liffradilegur_fjolbreytileiki_-

_heildarskyrsla.pdf, accessed 09/09/2009.

Pyne, Stephen J.2000. Where Have All the Fires Gone? Fire Management Today, Vol 60, No.3 Summer 2000

Rawls, James J. 2001. Chief Red Fox Is Dead: A History of Native Americans Since 1945. Wadsworth/Thomson Learning, Belmont, CA.

Reisner M. 1986. *Cadillac Desert*.

Richards MP. 2002. A brief review of the archaeological evidence for Palaeolithic and Neolithic subsistence. European Journal of Clinical Nutrition December 2002, Volume 56, Number 12, Pages 1270-1278

Rigdon PH. 2007. Case 3.4. INDIAN FOREST: LAND IN TRUST. Pp. 105-109. In: Forests and Society. Sustainability and Life Cycles of Forests in Human Landscapes. (Vogt KA, JM Honea, DJ Vogt, RL Edmonds, T Patel-Weynand, R Sigurdardottir, MG Andreu, eds) CABI International, United Kingdom

Rischard JF. 2002. HIGH NOON. 20 GLOBAL PROBLEMS 20 YEARS TO SOLVE THEM. Basic Books. Perseus Books Group.

Sandweiss MA. John Gast, *American Progress*, 1872. Amherst College. http://picturinghistory.gc.cuny.edu/item.php?item_id=180, accessed 8_2_12

Schiff, J.W., and K. Moore.2009. The IMPACT OF THE SWEATLODGE CEREMONY ON DIMENSIONS OF WELL-BEING. Accessed by web: Google Scholar November 22, 2009. http://aianp.uchsc.edu/journal/pdf/13(3)_3_Schiff_Impact_sweat_lodge.pdf

Schumacher EF. 1975. Small is Beautiful. Economics as if People Mattered. Harper Perennial, Harper Collins Publishers, Inc. NY.

Seljan H. (2005) 'Ég biðst forláts', www.visir.is/article/2005506090318, accessed 09/09/09.

Seymour M. 2012. The New York Times, Sunday Book Review June 29, 2012. Little Estate on the Prairie by P Pagnamenta 2012. PRAIRIE FEVER. British Aristocrats in the American West, 1830-1890. 338 pp. W. W. Norton & Company. www.nytimes.com/2012/07/01/books/review/prairie-fever-by-peter-pagnamenta.html.

Sheppard, D. S. and Mroczek, E. K. (2002) 'CO2 fluxes from geothermal system: assessing the effects of exploitation and the carbon tax implications', Proceedings 24" NZ Geothermal Workshop 2002.

Sjónarrönd (2009) 'Mat á arðsemi orkusölu til stóriðju, áfangaskýrsla (Assessment of the economical viability of energy sale to energy intensive industry)', Ministry of Finance, Reykjavik, Iceland, www.fjarmalaraduneyti.is/media/Utgefin_rit/Mat_a_ardsemi_orkusolu_til_storidju_1.pdf , accessed 09/09/09.

Smith, K.R. 1994. Health, energy, and greenhouse-gas impacts of biomass combustion in household stoves. Energy for Sustainable Development 1994; I(4):23-9)

Smith, L. T. (1999). *Decolonizing Methodologies: Research and Indigenous Peoples.* New York, NY: Zed Books Ltd.

Smith, Linda Tuhiwai.2005. Decolonizing Methodologies: Research and Indigenous Peoples. Zed Books Ltd. London & NY

Smyth AH. 1905-1907. The Writings of Benjamin Franklin. Macmillan, New York.

Sobel D. 2012. Look, Don't Touch. The problem with environmental education. Orion magazine. July/August 2012. www.orionmagazine.org/index.php/articles/article/6929.

Spokesman Review. 2012. Regional Tribes Included in Federal Settlement. //m.spokesman.com/stories/2012/apr/12/regional-tribes-included-in-federal-settlement/, accessed 3 September 2012

Steenland, Peter R, *Congressional Testimony Regarding the Grand Coulee Settlement Act, 1994*,Center for Columbia River History, www.ccrh.org/comm./river/docs/coltest.htm

Svenson, Sally, *Bison,* Custer State Park, Custer SD, Reviewed by: Dr. Kenneth Higgins, Dept. Wildlife and Fisheries, SDSU, Brookings, SD 1995, //northern.edu/natsource/mammals/bison1/htm

Swan, J. (2004) 'The Icelandic rift industry versus natural splendor in a "progressive" nation', Orion Magazine March/April 2004.

Taleb NN. 2012. Learning to love volatility. In a world that constantly throws big, unexpected events our way, we must learn to benefit from disorder. The Wall Street Journal. November 23-25, 2012. Pp. 14-15.

Taylor H. 1999. What we are afraid of. The Harris Poll #49, 18 August 1999. www.harrisinteractive.com/harris_poll/index.asp?PID=281, accessed 21 October 2005.

Taylor EK. 2003. Some Fruits of Solitude. Herald Press, Scottdale, Pennsylvania.

The Economist. 2012. Kings of the carnivores. Apr 30th 2012, 15:40 by The Economist online, www.economist.com/blogs/graphicdetail/2012/04/daily-chart-17?utm_source=Sightline+Newsletters&utm_campaign=9fa6b79667-SightlineDaily&utm_medium=email

Thorlaksson, I. H. (2009) 'Efnahagsleg áhrif erlendrar stóriðju' (Economic impacts of foreign energy intensive industry', //web.mac.com/inhauth/Indri%C3%B0i_H._%C3%9Eorl%C3%A1ksson/%C3%81grip_s%C3%AD%C3%B0ustu_greinar.html, accessed 09/09/09.

Tóth SF and ME McDill. 2009. Finding Efficient Harvest Schedules under Three Conflicting Objectives. Forest Science 55, pp. 117-131.

Travis J. 2012. No omnivore's dilemma for Alaskan hunter-gatherers. Science Now. 19 February 2012. //news.sciencemag.org/sciencenow/2012/02/no-omnivores-dilemma-for-alaskan.html

Trefts DC. 2004. Canadian and American policy making in response to the first multi-species fisheries crisis in the Greater Gulf of Maine region. Pp. 207-411. In: New England and the Maritime Provinces. Connections and Comparisons. (SJ Hornsby and JG Reid, eds.) McGill-Queen's University Press. Montreal, Kingston, London, Ithaca.

Treuer D. 2012. Kill the Indians, Then Copy Them. New York Times September 30, 2012, p. 8.

UN. 2012. www.unwater.org/wwd10/downloads/cbd-good-practice-guide-water-en.pdf, accessed 7/23/12

UNDP. 2007. Global Environment Outlook. GEO_4 environment for development. United Nations Environment Programme, Progress Press Ltd, Malta

United Nations. 2010. Indigenous Peoples and Boarding Schools: *A Comparative Study.* Economic and Social Council. E/C.19/2010/11. Permanent Forum on Indigenous Issues. Ninth session. New York, 19 - 30 April 2010. Item 3 of the provisional agenda. Special theme: "Indigenous peoples: development with culture and identity: articles 3 and 32 of the United Nations Declaration on the Rights of Indigenous Peoples".26 January 2010

Vale, T., R., 2002. Fire, Native Peoples and The Natural Landscape. Island Press, 1718 Connecticut Avenue, N.W., Suite 300, Washington DC, 2002.

Virtanen L and T DuBois. 2001. Finnish Folklore. Studia Fennica. Folkloristica 9. Finnish Literature Society, Helsinki in Association with the University of Washington Press, Seattle.

Vogt et al. 2010. Sustainability Unpacked. Food, Energy and Water for Resilient Environments and Societies. Earthscan. UK.

Vogt K.A., D.J. Vogt, T. Patel-Weynand, R. Upadhye, D. Edlund,.C. Gordon, A.S. Suntana, R.L. Edmonds, R. Sigurdardottir, P.A. Roads, M.G. Andreu. 2008. Why Forest Derived Biofuels can Mitigate Climate Change: The case for C-based energy production. Renewable Energy

Vogt K.A., J.M. Honea, D.J. Vogt, R.L. Edmonds, T. Patel-Weynand, R. Sigurdardottir, M.G. Andreu. 2006. Forests and Society. Sustainability and Life Cycles of Forests in Human Landscapes. CABI International, United Kingdom, November 2006.

Vogt K.A., Larson B.C., Vogt D.J., Gordon J.C., Fanzeres A. Forest Certification: Roots, Issues, Challenges and Benefits. 1999. CRC Press, Boca Raton, Florida.

Vogt KA, DJ Vogt, M Shelton, R Cawston, L Nackley, J Scullion, M Marchand, M Tulee, T Colonnese, L Stephan, S Doty, RK Hagmann, TC Greary, TA House, I Nwaneshiudu, PA Roads*, S Candelaria, LL James, E Kahn, LX Lai, AM Lee, SJ Rigdon, RM Theobold. 2009. Bio-resource Based Energy for Sustainable Societies. U of W, Seattle, WA. In: Sustainable Energy. Frank Columbus Ed. Nova Science Publisher, Inc. NY, October 2009.

Vogt KA, JJ Scullion, LL Nackley and M Shelton. 2012. Conservation Efforts, Contemporary. In: (S. Levin, ed.) Encyclopedia of Biodiversity. 2nd Edition. Academic Press.

Vogt, K.A, J. Gordon, J. Wargo, D. Vogt, H. Asbjornsen, P.A. Palmiotto, H. Clark, J. O'Hara, W.S. Keeton, T. Patel-Weynand, E. Witten with contributions by B Larson, D Tortoriello, J Perez, A Marsh, M Corbett, K Kaneda, F Meyerson, D Smith. 1997. Ecosystems: Balancing Science with Management. Springer-Verlag. NY. Pp. 470.

Vogt, Kristiina. 2009. Washington Rural Woody-Biofuels Collaborative Request. US Senator Patty Murray FY 2010 Appropriations General Request Form. Washington DC.

VSÓ Ráðgjöf (2007) 'Hverahlíðarvirkjun, Environmental Impact Assessment', Orkuveita Reykjavíkur, Reykjavik, Iceland, //vso.is/MAU-Gogn/3-9-mau-hverahlid/skjol-og-myndir/Hverahlid-frummatsskyrsla.pdf, accessed 09/09/09.

WCD (World Commission on Dams). 2000. *Dams and Development – A New Framework for Decisionmaking – The Report of the World Commission on Dams.* 2000, Earthscan Publications Ltd., London and Sterling, Va. http://www.dams.org/report

Weatherford J. 1988. Indian Givers. How the Indians of the Americas Transformed the World. Fawcett Books. New York.

Websters Dictionary. Campaign hats. //www.websters-dictionary-online.org/definitions/campaign+hat, accessed July 27, 2012.

WHO/UNDP. 2004. Indoor air pollution - the killer in the kitchen. Joint Statement WHO/UND. Genewa: WHO/UNDP; 2004. http://www.who.int/mediacentre/news/statements/2004/statement5/en/index.html

Wilkins, David E, *Native American Politics and the American Political System,* 2007, Rowman and Littlefield

Wilkinson, Charles. 2005 Blood Struggle: The Rise of Modern Indian Nations. W.W.Norton & Company, NY

Williams, Gerald W. 2000. Introduction to Aboriginal Fire Use in North America.Vol.60, No.3, Sumer 2000

Wilson, Shawn.2008.Research Is Ceremony: Indigenous Research Methods. Fernwood Publishing, Winnipeg, Canada

Wilton D. 2004. Word Myths: Debunking Linguistic Urban Legends. Oxford University Press.

Winters RK. 1974. The Forest and Man. Vantage Press, New York.

World Bank. 2007. Growth and CO_2 emissions: How do different countries fare? Environment Department. The World Bank. October 2007

Yardley W. 2012. Tea party blocks pact to restore a west coast river. The New York Times. July 19, 2012. p. A16.

Yglesias M. 2012. Bill Koch Building Private Cowboy Town 'For His Huge Collection Of Western Memorabilia'. www.huffingtonpost.com/2012/08/21/bill-koch-private-town_n_1818529.html, accessed 10_28_12